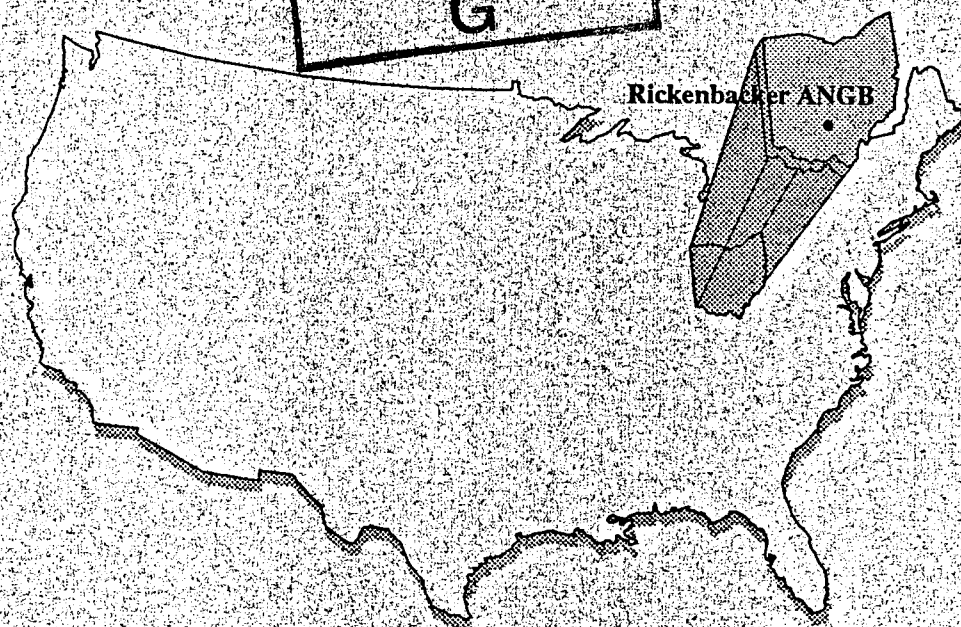
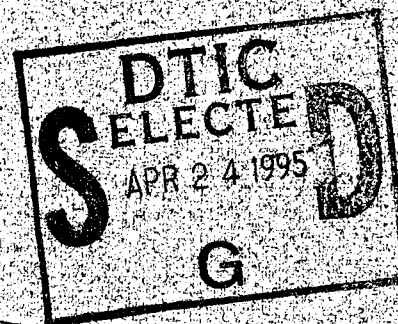
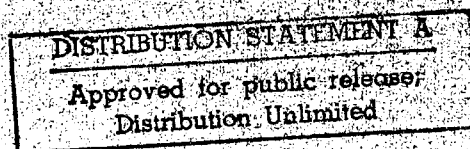




**DRAFT  
ENVIRONMENTAL IMPACT STATEMENT  
July 1994**



**DISPOSAL AND REUSE OF PORTIONS OF  
RICKENBACKER  
AIR NATIONAL GUARD BASE  
OHIO**

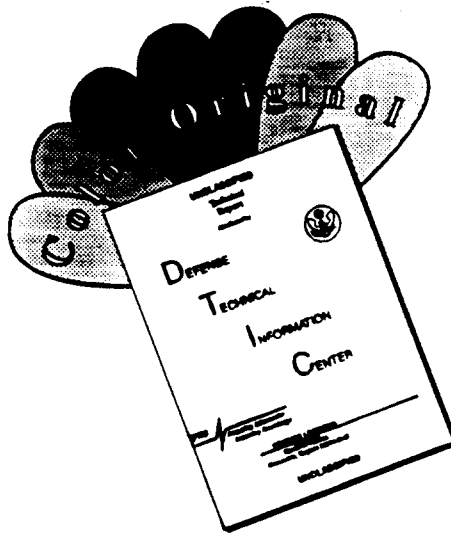


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13. ABSTRACT (Maximum 200 Words) Pursuant to the Defense Base Closure and Realignment Act of 1990, Rickenbacker Air National Guard Base is scheduled for realignment on September 30, 1994. This EIS, prepared in accordance with the National Environmental Policy Act, analyzes potential environmental impacts of disposal. Although disposal will have few direct effects, future use by others will create indirect effects. The document includes analyses of potential impacts a range of reasonable foreseeable reuses could have on local land use and aesthetics, transportation, utilities, hazardous materials/wastes, geology and soils, water resources, air quality, noise, biological resources, and cultural resources. All reuse alternatives, including the Proposed Action and the No-Action Alternative, incorporate aviation and land use areas. Potential impacts associated with the Proposed Action include land use conflicts, aircraft-related noise, traffic increases, increased air emissions and wetland disturbance. Proposed mitigations include restricting residential development near the airport; incorporation of FAA-mandated Stage III engines on all commercial aircraft by the year 2000; planned improvement to local roads; application of state control measures to reduce traffic trips, especially during peak hours; and avoiding wetland areas to the extent possible. Because the Air Force is disposing of the property, some of the mitigation measures are beyond Air Force control. Remediation of the Installation Restoration Program sites will continue to be the responsibility of the Air Force.				
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Draft

Environmental Impact Statement

Disposal and Reuse of  
Portions of  
Rickenbacker Air National Guard Base  
Columbus, Ohio

July 1994

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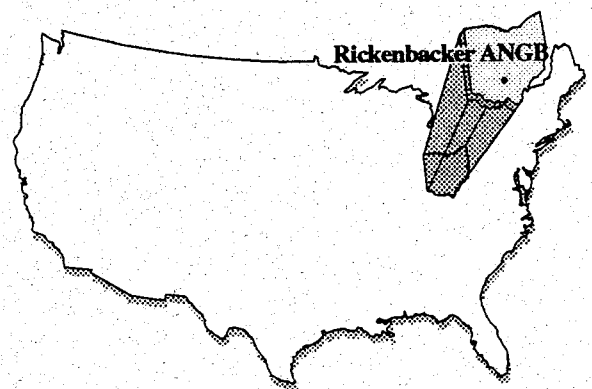
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**DRAFT ENVIRONMENTAL IMPACT STATEMENT  
DISPOSAL AND REUSE OF RICKENBACKER AIR NATIONAL GUARD BASE, OHIO**

- a. Lead Agency: United States Air Force.
- b. Cooperating Agency: Federal Aviation Administration.
- c. Proposed Action: Disposal and Reuse of portions of Rickenbacker Air National Guard Base (RANGB), Franklin and Pickaway counties, Columbus, Ohio.
- d. Written comments and inquiries on this document should be directed to: Director of Environmental Conservation and Planning Division, AFCEE/EC, 8106 Chennault Road, Brooks Air Force Base, Texas, 78235-5318, (210) 536-3869. Comments are due by September 5, 1994.
- e. Designation: Draft Environmental Impact Statement (DEIS).
- f. Abstract: Pursuant to the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510, Title XXIX), Rickenbacker Air National Guard Base (ANGB) is scheduled for realignment in September 1994. This Environmental Impact Statement (EIS) has been prepared in accordance with the National Environmental Policy Act (NEPA) to analyze the potential environmental consequences of disposal. Although disposal of portions of the base will have few, if any, direct effects, indirect effects would be created by future use by others. This EIS, therefore, includes analyses of the potential impacts that a range of reasonably foreseeable alternative reuses may have on the local community, including land use and aesthetics, transportation, utilities, hazardous materials/wastes, geology and soils, water resources, air quality, noise, biological resources and cultural resources. All reuse alternatives, including the Proposed Action and the No-Action Alternative, incorporate aviation land use areas. Impacts of the No-Action Alternative are also considered. Potential environmental impacts associated with the Proposed Action include land use conflicts, aircraft-related noise, traffic increases, increased air emissions and wetlands disturbance. Proposed mitigations include zoning amendments to restrict residential development near the airport; incorporation of FAA-mandated Stage III engines on all commercial aircraft by the year 2000; planned improvements to local roads; application of state control measures to reduce traffic trips, especially during peak hours; and avoiding wetland areas to the extent possible during construction. Because the Air Force is disposing of portions of the property, some mitigation measures are beyond the control of the Air Force. However, remediation of hazardous waste sites under the Installation Restoration Program and other applicable regulatory programs is and will continue to be the responsibility of the Air Force.

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## SUMMARY

## SUMMARY

### BACKGROUND

For the purpose of evaluating potential environmental impacts resulting from the incident reuse of this land, the Air Force has based its Proposed Action on the RPA's Airport Master Plan which has been reviewed by a Planning Action Committee comprised of local, state, and federal officials; private citizens and business representatives. The Master Plan for the Rickenbacker International Airport encompasses 6,552 acres in total, including 1,620 acres to be acquired from private land owners for the construction of a new runway. This Master Plan is being used as the Preliminary Community Reuse Plan for Rickenbacker ANGB is Environmental Impact Statement (EIS) examines the potential for impacts to the environment as a result of realignment and reuse of Rickenbacker ANGB, Ohio, as well as interim activities (e.g., interim outleases) that may be allowed by the Air Force before final base realignment. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations implementing NEPA. Appendix A presents a glossary of terms, acronyms, and abbreviations used in this document.

### PURPOSE AND NEED FOR ACTION

Rickenbacker Air National Guard Base (ANGB) was recommended for closure by the 1991 Defense Base Closure and Realignment Commission (Commission). After the 1991 Commission recommendations were announced, the State of Ohio proposed that, under the circumstances at the time, more money could be saved by leaving the two Air National Guard (ANG) tanker units at Rickenbacker ANGB than by relocating the units to Wright-Patterson Air Force Base (AFB). This savings would result primarily from the State's burden-sharing proposal to lower the ANG's long-term operating costs at Rickenbacker ANGB. State and community concerns related to possible negative impacts on unit recruitment and retention, caused by the move to Wright-Patterson AFB, also played a part in the decision. The Dayton, Ohio area already has a recruiting shortfall and the local community felt that relocating additional ANG units to the area would make the situation worse. The 1993 Defense Base Closure and Realignment Commission submitted a new list of recommended base closures and realignments. The 1993 Commission recommended that Rickenbacker ANGB be realigned rather than closed, and that the 121st Air Refueling Wing (121 ARW) and the 160th Air Refueling Group (160 ARG) move into a cantonment area on the present base and operate as a tenant of the RPA. These recommendations were accepted by the President and became law when Congress did not vote against the Commission recommendations. Realignment of Rickenbacker ANGB is scheduled to occur on September 30, 1994. Because

1 Rickenbacker ANGB was on the 1993 Commission's list, the decision to realign  
2 the base is final.

3 The Air Force is required to comply with the National Environmental Policy Act  
4 (NEPA) in implementation of base disposal and reuse. The Air Force must now  
5 make a series of interrelated decisions concerning the disposition of base  
6 property. This EIS has been prepared to provide information on the potential  
7 environmental impacts resulting from disposal of portions of the base and  
8 proposed reuse of those properties. The Federal Aviation Administration, a  
9 cooperating agency in the preparation of this EIS, will make decisions on their  
10 own and assist the Air Force in making related decisions concerning  
11 Rickenbacker ANGB property. Several alternative reuse concepts are studied to  
12 identify the range of potential direct and indirect environmental consequences of  
13 disposal and reuse of portions of the base property.

14 After completion and consideration of this EIS, the Air Force will prepare  
15 decision documents on its disposition plan for the base and the terms and  
16 conditions under which the dispositions will be made. These decisions may  
17 affect the environment by influencing the nature of the future use of the  
18 property.

## 19 **ALTERNATIVES INCLUDING THE PROPOSED ACTION**

20 Rickenbacker ANGB currently comprises 2,016 acres of which 1,708 acres will  
21 be available for disposal pursuant to base realignment. The Ohio ANG will  
22 retain about 179 acres of the existing base as a cantonment area for continued  
23 operations. Approximately 170 acres are contiguous and adjacent to the airfield.  
24 The remaining nine acres are in five non-contiguous parcels that include  
25 facilities required for the ANG mission. In addition, the U.S. Army proposes to  
26 obtain an enclave of about 129 acres along the airfield immediately southwest of  
27 the Ohio ANG cantonment. This area will be used by the Ohio Army National  
28 Guard and Army Reserve.

29 Portions of the base were previously excessed when the Air Force withdrew  
30 active duty operations in 1980. During the 1980s, about 2,082 acres were  
31 excessed, 1,652 acres of which were acquired by the Rickenbacker Port  
32 Authority (RPA) and currently comprise Rickenbacker International Airport. Of  
33 the remaining land, 415 acres were sold to private developers, and about 25  
34 acres were transferred to the U.S. Navy.

35 The RPA is the redevelopment authority for Rickenbacker ANGB. It has been  
36 acquiring portions of the base as they were declared surplus since the early  
37 1980s. The RPA also holds a 70-year lease for the airfield comprising 1,643  
38 acres and a 50-year lease for 29 acres of aviation support areas adjacent to the  
39 airfield on the north side of Taxiway A. This leased property is included in the  
40 disposal action.

1 For the purpose of evaluating potential environmental impacts resulting from the  
2 incident reuse of this land, the Air Force has based its Proposed Action on the  
3 RPA's Airport Master Plan which has been reviewed by a Planning Action  
4 Committee comprised of local, state, and federal officials; private citizens and  
5 business representatives. The Master Plan for the Rickenbacker International  
6 Airport encompasses 6,552 acres in total, including 1,620 acres to be acquired  
7 from private land owners for the construction of a new runway. This Master Plan  
8 is being used as the Preliminary Community Reuse Plan for Rickenbacker  
9 ANGB.

10 **Proposed Action.** The Proposed Action is a comprehensive reuse plan for an  
11 international air cargo airport. This proposal combines aviation and industrial  
12 uses with plans for future expansion of the airport by acquisition of private land  
13 adjoining the airport to the southeast. This land would be used to construct a  
14 new runway parallel to the existing runways. Air cargo operations under this  
15 scenario would increase substantially, with growth based on capturing demand  
16 from outside areas. Military operations would continue at pre-realignment levels  
17 with the military facilities sited in a cantonment area located northwest of the  
18 runways. Military aircraft operations would consist of approximately 8,600  
19 helicopter operations by the Ohio Army National Guard and 13,000 fixed-wing  
20 operations by the Ohio Air National Guard and other transient military aircraft.  
21 An operation consists of one take-off, landing, or closed pattern.

22 **Alternatives to the Proposed Action.** The proposed alternatives include two  
23 aviation alternatives and the No Action Alternative. The Aviation with Industrial  
24 Park Alternative is similar to the Proposed Action except it does not include  
25 plans for the expansion of the airport to the southeast. Under this scenario, the  
26 airport would be limited to land already owned by the RPA and additional land  
27 currently comprising Rickenbacker ANGB, which would be transferred or sold.  
28 The Aviation with Mixed Use Alternative includes residential, commercial, and  
29 community recreation uses in addition to aviation, aviation support, and  
30 industrial land uses. Aviation activity would reflect a more moderate level of  
31 growth than under the Proposed Action or the Aviation with Industrial Park  
32 Alternative, although military aircraft operations would remain the same.

33 **No-Action Alternative.** Under the No-Action Alternative, no disposal of  
34 property on Rickenbacker ANGB would occur. Current leases for aviation use  
35 by the RPA would continue, and the military units at the base would occupy the  
36 same cantonment and enclave areas as under the Proposed Action and other  
37 alternatives. The remainder of the base property would be placed in caretaker  
38 status with no reuse.

39 **Federal Transfer and Other Independent Proposals.** In response to  
40 solicitation from the Department of Defense in accordance with the Federal  
41 Property and Administrative Services Act of 1949, requests are being received

1 from state and federal agencies for acquisition of certain land or facilities that  
2 may become available after disposal. In addition, requests from independent  
3 organizations and individuals have been received.

4 The U.S. Army Reserve has requested four dormitories and two other support  
5 facilities for use as a training center. the facilities would be used as offices and  
6 classrooms, similar to current uses.

7 Homeless assistance providers have requested use of all the dormitories and  
8 community facilities including the gymnasium, Officers Club, swimming pool,  
9 and ballfields for housing and recreation areas for about 500 homeless persons.

10 The Ohio Department of Rehabilitation and Corrections would like to use the  
11 dormitories and associated heating facility, community facilities and a  
12 warehouse as a Corrections Officer Training facility and regional administration  
13 complex.

14 The RPA requests that the Naval Reserve Center relocate from its 25 acres at  
15 the north end of the airfield to Building 874, a large warehouse facility adjacent  
16 to the Ohio Air National Guard cantonment area. This would consolidate military  
17 use areas and make the 25 acres available for aviation support activity.

18 Several other agencies and independent parties have requested all or some of  
19 the community facilities and dormitories at the northwest side of the base to use  
20 for lodging, recreation, and education activities. A proposal for Building 583 for  
21 use as a flight training school and one hangar as an aircraft maintenance area  
22 has also been received.

## 23 SCOPE OF STUDY

24 The Notice of Intent (NOI) to prepare an EIS for the disposal and reuse of  
25 portions of Rickenbacker ANGB was published in the Federal Register on  
26 October 9, 1991. Issues related to the disposal and reuse of portions of the base  
27 were identified during the ensuing scoping period. A public scoping meeting was  
28 held on November 14, 1991, at the Franklin County Building in Columbus, Ohio.  
29 Ten people offered verbal comments at the meeting

30 A second scoping meeting was held at the Hamilton South Elementary School  
31 near Lockbourne, Ohio on May 3, 1994 to announce the changes to the  
32 proposed actions at Rickenbacker ANGB which were a part of the 1993 Base  
33 Closure and Realignment Commission's decision. Four people offered verbal  
34 comments at this meeting.

35 In addition to verbal comments, written comments were received during the  
36 scoping process. These comments, as well as information from previous Air  
37 Force projects, meetings with the RPA, and NEPA documents, were used to help

determine the scope and direction of studies and analyses to accomplish this EIS.

This EIS discusses the potential environmental impacts associated with the Proposed Action and reasonable alternatives, as well as with interim activities (e.g., interim outleases) that may be allowed by the Air Force before final disposal of selected properties. In order to establish the context in which these environmental impacts may occur, potential changes in population and employment, land use and aesthetics, transportation, and community and public utility services are discussed as reuse-related influencing factors. Issues related to current and future management of hazardous materials and wastes are also discussed. Potential impacts to the physical and natural environment are evaluated for soils and geology, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of disposal and reuse actions or as an indirect result of changes to the local communities.

The baseline against which the Proposed Action and alternatives are analyzed consists of the conditions projected at base realignment in 1994. Although the baseline assumes a realigned base, a reference to pre-realignment conditions is provided in several sections (e.g., air quality and noise) to allow a comparative analysis over time. Referred to as the "pre-realignment reference," these discussions address the conditions in 1991 at the time the base was initially recommended for closure. This will assist the Air Force decision-maker and other agencies that may be making decisions relating to disposal and reuse of portions of Rickenbacker ANGB in understanding potential long-term trends in comparison to historic conditions when the installation was more active.

The Air Force is also preparing a separate Socioeconomic Impact Analysis Study (SIAS) on the economic impacts expected in the region as a result of the disposal and reuse of portions of Rickenbacker ANGB. That document, although not required by NEPA, will assist the local community in planning for the transition of the base from military to civilian use. The EIS uses population and employment projections from the SIAS to support the analysis of potential environmental impacts to biophysical resources.

## SUMMARY OF ENVIRONMENTAL IMPACTS

This EIS considers environmental impacts of the Air Force's disposal of portions of the installation and portrays a variety of potential land uses to cover reasonable future uses of the property and facilities by others. Several alternative scenarios, including the RPA's proposed plan, were used to group reasonable land uses and to examine the environmental effects of likely reuse of Rickenbacker ANGB.



Environmental impacts of the Proposed Action and reasonable alternatives are described briefly below. Influencing factors include projections of the reuse activities that would likely influence the biophysical environment, including ground disturbance, socioeconomic factors, and infrastructure demands, and are summarized in Table S-1 shown at the end of this summary. The employment and population trends are depicted in Figures S-1 and S-2, also shown at the end of this summary. Impacts of the Proposed Action and alternatives over the 20-year study period are summarized in Table S-2 shown at the end of this summary.

**Mitigations and Pollution Prevention.** Options of mitigating potential environmental impacts that might result from the Air Force disposing of property or from the implementation of the Proposed Action or alternatives by property recipients are presented and discussed. Since most potential environmental impacts would result directly from the reuse by others, the Air Force would not typically be responsible for implementing such mitigations. Full responsibility for these suggested mitigations, therefore, would be borne primarily by future property recipients or local governmental agencies. Mitigation suggestions, where appropriate, are listed in terms of their potential effectiveness if implemented for affected resource areas and are summarized along with the environmental impacts of the Proposed Action and alternatives in Table S-2. However, remediation of hazardous waste sites under the Installation Restoration Program and other applicable regulatory programs is and will continue to be the responsibility of the Air Force.

## PROPOSED ACTION

**Local Community.** Redevelopment of base property under the Proposed Action would create approximately 4,044 direct and 4,890 indirect jobs by the year 2014. Population within the Region of Influence (ROI) would increase by 477 people. Zoning changes may be required to limit residential development in the immediate vicinity of the airfield. This would help to limit aircraft noise issues as the airport grows. In addition, changes may be required to the City of Columbus Comprehensive Plan to incorporate industrial and aviation growth in the vicinity of the airport. Roadway improvements planned by local government will accommodate the growth associated with the Proposed Action for the next 10 years. However, by the year 2014, an increase of approximately 11,467 average daily trips would be generated by development of the airfield. Additional future planning efforts by local governments would be necessary to accommodate these commuters adequately. No airspace conflicts are anticipated as a result of the Proposed Action. The air traffic control systems for the airport and for Columbus Approach Control are more than adequate to handle the expected number of operations. Future utility demands anticipated as a result of the Proposed Action are well within the projected capacity of the local utility suppliers.

1           **Hazardous Materials and Hazardous Waste Management.** The types of  
2 hazardous materials and wastes used and generated under the Proposed Action  
3 are expected to be similar to those present during pre-realignment use.  
4 However, the quantities are expected to be greater than at the realignment  
5 baseline. The responsibility for managing hazardous materials and wastes  
6 would shift from a single user to multiple, independent users. This may degrade  
7 the capability of responding to hazardous materials and hazardous waste spills.  
8 Hazardous materials and hazardous wastes would be managed inside the  
9 military cantonment and enclave areas by the respective military units. Those  
10 outside the military areas would be responsible for their own hazardous materials  
11 and hazardous waste management. The incorporation of landscaping and  
12 amenities in the industrial and commercial areas is expected to result in an  
13 increase in pesticide use over realignment baseline conditions. It is assumed  
14 that adequate management procedures would be imposed by the new owners  
15 and their lessees, as required by applicable laws and regulations, to ensure  
16 proper use and handling of these materials.

17           Reuse activities are not expected to affect the ongoing remediation of  
18 Installation Restoration Program (IRP) sites, which is proceeding according to  
19 Comprehensive Environmental Response, Compensation and Liability Act  
20 (CERCLA) and other regulatory program requirements. Based on the results of  
21 IRP investigations and remediations, the Air Force may, where appropriate,  
22 place limits on land reuse through deed restrictions on conveyances and use  
23 restrictions on leases. Air Force policy requires removal of existing underground  
24 storage tanks (USTs) not in compliance with current regulations. Storage tanks  
25 required by the new owners would be subject to all regulations to avoid  
26 unacceptable impacts. All polychlorinated biphenyl (PCB) and PCB-  
27 contaminated equipment under Air Force control has been identified. Demolition  
28 or renovation of structures with asbestos-containing materials may occur with  
29 redevelopment and would be the responsibility of the new owners.  
30 Consideration was given to the potential for radon hazards. A survey conducted  
31 on base indicated that three locations exceed the U.S. Environmental Protection  
32 Agency (U.S. EPA) recommended radon action level for soils of 500 pCi/l. All  
33 air and water samples taken indicate radon present at levels below the  
34 recommended standards of 4 pCi/l and 10,000 pCi/l respectively.

35           **Natural Environment.** There would be minimal impacts on soils and water  
36 quality from the demolition and construction activities associated with the  
37 Proposed Action. Construction activities could disturb wetland areas on base  
38 resulting in impacts to sensitive wetland habitats and the animals that inhabit  
39 them. Air quality impacts from increased aircraft operations, traffic and  
40 construction-generated dust would also occur. The FAA's noise reduction  
41 program requires that commercial aircraft be fitted with quieter (Stage III)  
42 engines by the year 2000. This would occur in stages from 1995 to 2000 and  
43 would result in decreased aircraft noise generated by the airport, even though

the number of operations would increase. No major impacts to cultural resources are anticipated on the base property. Impacts to cultural resources are possible in the area planned for the new runway and other off base areas. However, these impacts would be the responsibility of the developer of the property. New owner/operators would have to consult with the Ohio State Historic Preservation Officer and comply with federal regulations if federal funding is used or a federal permit is required for the project.

## AVIATION WITH INDUSTRIAL PARK ALTERNATIVE

**Local Community.** The Aviation with Industrial Park Alternative would create 3,964 direct and 4,807 indirect jobs by the year 2014. Population within the ROI would increase by 471 people. By the year 2014 an increase of approximately 11,550 average daily trips would be generated along local roadways. Additional future planning efforts by local governments would be necessary to accommodate these commuters adequately.

The impacts of this alternative are similar to those of the Proposed Action except that the area for the new runway would not be acquired. This would lessen the impacts on land use, soils, water quality, and biological and cultural resources in comparison to the Proposed Action. Aircraft operations would remain the same for this alternative as for the Proposed Action. Employment and population would be slightly less than the Proposed Action, while utility demand and traffic increases would be very similar to the Proposed Action. Requisite zoning changes would be as described for the Proposed Action.

**Hazardous Materials and Hazardous Waste Management.** Hazardous materials management would be as described for the Proposed Action.

**Natural Environment.** Impacts on the natural environment would be slightly less than those described for the Proposed Action, due to the smaller area disturbed over time.

## AVIATION WITH MIXED USE ALTERNATIVE

**Local Community.** Employment and population changes would be much smaller than for the Proposed Action. It is estimated that 1,259 direct and 1,725 indirect jobs would be generated by this alternative. The population is expected to increase by 158 persons and the impacts on local roads and utilities therefore would be much less. By the year 2014, an increase of approximately 7,808 average daily trips would be generated along local roadways.

**Hazardous Materials and Hazardous Waste Management.** There are 92,381 aircraft operations anticipated under this alternative, an increase of 570 operations per year from the realignment baseline. This would result in much

less use of hazardous materials and generation of hazardous waste than the Proposed Action.

**Natural Environment.** The amount of ground disturbance would be substantially lower for this alternative, resulting in substantially fewer impacts to the natural environment when compared to the Proposed Action.

## NO-ACTION ALTERNATIVE

**Local Community.** The Air Force activities associated with the No-Action Alternative would be the caretaker maintenance of the base and continued operation of the RPA and the ANG units. This would generate approximately 15 direct and 4 secondary jobs. This would not result in a noticeable increase in either employment or population. The land currently leased by the RPA would continue to be leased for aviation use. The Ohio Air National Guard would remain as under the other alternatives. Approximately 3,712 full-time direct and 407 secondary jobs would continue to be associated with the military cantonment. The presence of an essentially vacant and unused area in the middle of the community could hamper or delay redevelopment and revitalization of adjacent lands. No effects on utilities or on road, air, or railroad transportation are expected.

**Hazardous Materials and Hazardous Waste Management.** Small quantities of various types of hazardous materials and pesticides would be used for caretaking under this alternative. All materials and waste would be managed and controlled by the Air Force Base Conversion Agency Operating Location and Caretaker Force team in accordance with applicable regulations. Storage tanks would be removed or maintained in place according to required standards.

**Natural Environment.** This alternative would result in negligible impacts on air quality, the noise environment, and biological resources. The No-Action Alternative would not impact geological resources, soils, water resources, or cultural resources relative to baseline conditions.

## OTHER LAND USE CONCEPTS

Other land use concepts are discussed in terms of their potential effects on employment, population, and the environment. These other land use concepts are summarized in Table S-3. These independent uses would involve individual buildings or small parcels of land and could be combined with any one of the reuse plans with little impact.

Table S-1. Summary of Reuse-Related Factors

Factor	Proposed Action			Aviation with Industrial Park Alternative			Aviation with Mixed Use Alternative		
	1999	2004	2014	1999	2004	2014	1999	2004	2014
Ground disturbance (acres by phase)	52	50	235	46	105	145	32	28	55
Aircraft operations (annual)	128,976	163,776	233,741	128,976	163,776	233,741	79,941	84,245	92,381
Direct employment	3,737	4,039	7,358	3,703	5,518	7,278	3,778	4,057	4,573
Secondary employment	899	1,238	5,302	869	3,065	5,219	975	1,330	2,137
Population increase	47	84	477	44	256	471	56	87	158
Traffic (total daily trips)	4,264	6,193	13,487	3,969	8,676	13,570	5,312	7,217	9,826
Increase in water demand (MGD)	0.07	0.008	0.142	0.01	0.07	0.142	0.06	0.11	0.146
Increase in wastewater production (MGD)	0.06	0.06	0.11	0.01	0.06	0.12	0.05	0.09	0.12
Increase in solid waste (tons/day)	2.17	2.72	8.49	0.65	4.27	8.45	2.28	3.60	5.08
Increase in electricity demand (MWH/day)	13.85	19.70	73.55	6.64	36.38	73.12	7.22	13.56	23.34
Increase in natural gas demand (MMCF/day)	0.12	0.18	0.76	0.07	0.38	0.76	0.09	0.16	0.28

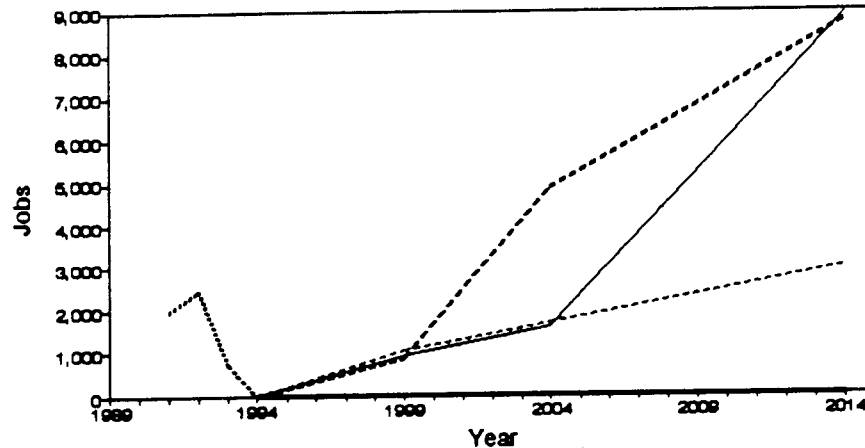
MGD = million gallons per day.

MWH = megawatt-hours.

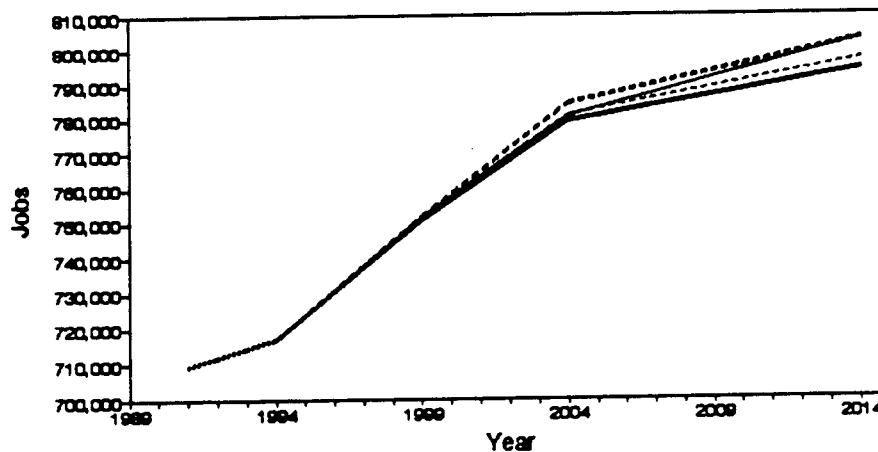
MMCF = million cubic feet

Alternative	1994(a)	1999	2004	2014
Proposed Action	1,148	910	1,559	8,934
Aviation with Industrial Park	1,148	846	4,865	8,771
Aviation with Mixed Use	1,148	1,027	1,669	2,984
No Action	1,148	0	0	0

Reuse-Related  
Employment  
Effects (b)



Reuse-Related  
Employment  
Effects  
(b)



Total  
Employment  
Including  
Reuse Effects  
(migration)

## EXPLANATION

- ..... Preclosure
- Proposed Action
- Aviation with Industrial Park Alternative
- - - - - Aviation with Mixed Use Alternative
- No-Action Alternative

- (a) The 1994 values represent full-time, site-related employment under closure conditions.
- (b) Employment effects include both direct and secondary employment and represent the net change in employment above the No-Action alternative.

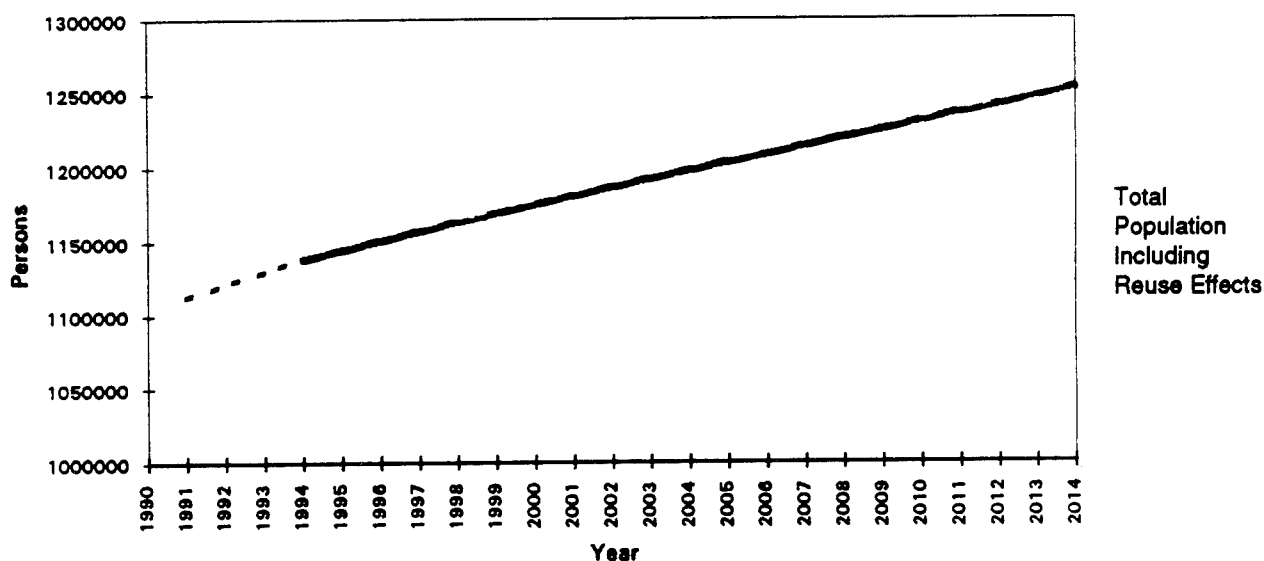
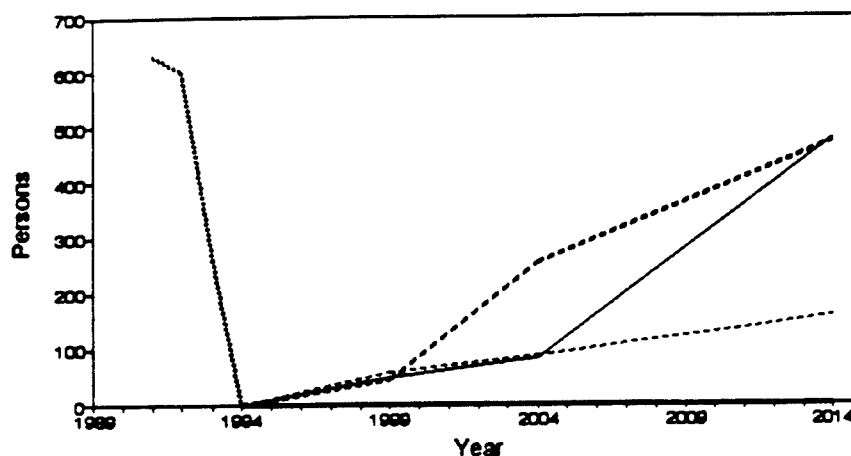
Source: US Air Force, 1994.

## Reuse-Related Employment Effects

Figure S-1

Alternative	1994(a)	1999	2004	2014
Proposed Action	1,148	910	1,559	8,934
Aviation with Industrial Park	1,148	846	4,865	8,771
Aviation with Mixed Use	1,148	1,027	1,669	2,984
No Action	1,148	0	0	0

Reuse-Related  
Population  
Effects (b)



## EXPLANATION

- ..... Preclosure
- Proposed Action
- ..... Aviation with Industrial Park Alternative
- ..... Aviation with Mixed Use Alternative
- No-Action Alternative

(a) 1994 represents closure conditions  
(b) Migratory-related population effects are the persons that would move into the ROI solely as a result of reuse.

## Reuse-Related Population Effects

Figure S-2

Source: U.S. Air Force, 1994

**Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**

**Page 1 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Local Community Land Use and Aesthetics	<p>Conditions: Combined military activities within retained cantonment areas, and joint use of airfield. Other portions of the base placed under caretaker status.</p>	<p>◆ Impacts: Civilian redevelopment within the study area and total RPA planning area for industrial and aviation support activities. Projected high growth in civilian air operations; expansion of airfield for new runway. May require revisions to Columbus Comprehensive Plan. Impacts to existing residential uses adjacent to the base. Impacts to property holders due to airfield expansion.</p> <p>◆ Mitigations: Modification of Columbus Comprehensive Plan to include intensive development in vicinity of Rickenbacker International Airport; zoning amendments regarding development near airport; early acquisition of undeveloped land for airport expansion. Continued agricultural use in airfield protection and buffer zones. Use of buffers and landscaping to screen incompatible uses.</p>	<p>◆ Impacts: Same as Proposed Action except no expansion for new runway.</p> <p>◆ Mitigations: Same as Proposed Action except no acquisition of land for expansion required. Use of buffers and landscaping to screen incompatible uses.</p>	<p>◆ Impacts: Combined joint-use airfield activities and mixed use redevelopment within study area may have beneficial impacts on adjacent residential areas and provide recreation resources for surrounding area. Residential and community areas may be in proximity to industrial areas.</p> <p>◆ Mitigations: Same as Aviation with Industrial Use, although zoning amendments should also provide for integrated planning district development. Use of buffers and landscaping to screen incompatible uses.</p>	<p>◆ Impacts: Empty facilities in study area may affect marketability and growth of RPA air/industrial park activities.</p> <p>◆ Mitigations: Amendments to local zoning ordinances to restrict development near airport. Use of buffers and landscaping to screen incompatible uses.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

RPA = Rickenbacker Port Authority

*Rickenbacker ANGB Disposal and Reuse DEIS*



**Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 2 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Surface Transportation	<p>Conditions: 2,020 daily vehicular trips.</p>	<p>◆ Impacts: Reuse would generate 13,487 daily vehicular trips, an increase of 11,467 daily trips by the year 2014. Roadway segments would not provide acceptable level of service (LOS) due to growth within the study area and total RPA planning area.</p> <p>◆ Mitigations: Improvements to State Highway 317 and Groveport Road would be required 10-20 years after base realignment due to growth in planning area.</p>	<p>◆ Impacts: Reuse would generate 13,570 daily vehicular trips, an increase of 11,550 daily trips, by the year 2014. Similar to Proposed Action.</p>	<p>◆ Impacts: Reuse would generate 9,828 daily vehicular trips, an increase of 7,808 daily trips, by the year 2014. Roadway segments would continue to provide acceptable LOS.</p>	<p>◆ Impacts: Reuse would generate 2,035 daily vehicular trips, an increase of 15 daily trips, by the year 2014. Roadway segments would continue to provide acceptable LOS.</p>
Air Transportation	<p>77,146 annual aircraft operations at the airfield from both military and commercial users.</p>	<p>◆ Impacts: Increase of 156,595 annual aircraft operations. No airspace conflicts or air transportation impacts.</p>	<p>◆ Impacts: Same as Proposed Action.</p>	<p>◆ Impacts: Increase of 15,235 annual aircraft operations. No airspace conflicts or air transportation impacts.</p>	<p>◆ Impacts: Same as Aviation with Mixed Use Alternative.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

LOS = level of service

RPA = Rickenbacker Port Authority

*Rickenbacker ANGB Disposal and Reuse DEIS*

**Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**

**Page 3 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Utilities Use	<p>Conditions:</p> <p>Water: 0.17 MGD Wastewater: 0.30 MGD Solid Waste: 2.7 Tons/Day Electric: 19.07 MWH/Day Gas: 0.06 MMCF/Day</p>	<p>Impacts:</p> <p>Minor increases in ROI utility demand; natural gas increase of 55 percent. Current systems with planned improvements would be able to accommodate these increased demands.</p> <p>Mitigations:</p> <p>Pretreatment of industrial wastewater may be required.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Natural gas use increase 27 percent. Otherwise same as Proposed Action.</p>	<p>Impacts:</p> <p>No changes in base-related utility use.</p>
<b>Hazardous Materials and Hazardous Waste Management</b>					
Hazardous Materials Management	<p>Conditions:</p> <p>Materials used for retained military activities and caretaker activities will be managed in compliance with applicable regulations.</p>	<p>Impacts:</p> <p>Increase in quantities of materials used. Compliance with applicable regulations would preclude unacceptable impacts.</p> <p>Mitigations:</p> <p>Establish cooperative planning body.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>No change in types and quantities used.</p>
Hazardous Waste Management	<p>Conditions:</p> <p>Wastes generated by retained military activities are managed in accordance with applicable regulations.</p>	<p>Impacts:</p> <p>Increase in quantities of wastes generated. Compliance with applicable regulations would preclude unacceptable impacts.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>No change in quantities generated.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

MGD = million gallons per day  
MWH = megawatt hours  
MMCF = million cubic feet per day  
ROI = region of influence

**Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 4 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Hazardous Waste Management (Cont.)		<p>♦ Mitigations: Collection of hazardous household products; educational programs on recycling, waste minimization, waste disposal.</p> <p>♦ Impacts: Possible redevelopment delays and land use restrictions due to remediation.</p>	<p>♦ Mitigations: Same as Proposed Action.</p> <p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Mitigations: Same as Proposed Action.</p> <p>♦ Impacts: Same as Proposed Action.</p>	
Installation Restoration Program	<p>Conditions: IRP activities will continue in accordance with applicable regulations regardless of base realignment and reuse.</p>	<p>♦ Mitigations: Coordination between OL and planning agencies to address potential problems. Remediation activities coordinated between OL and management teams for reuses involving 14 IRP sites.</p>	<p>♦ Mitigations: Same as Proposed Action.</p>	<p>♦ Mitigations: Same as Proposed Action.</p>	<p>♦ Impacts: IRP remediation activities completed or continued as needed.</p>
Storage Tanks	<p>Conditions: Storage tanks used by retained military activities will be managed in accordance with applicable regulations. Unused tanks will be removed or maintained in place in accordance with applicable standards.</p>	<p>♦ Impacts: Storage tanks used by new owner/operator would be subject to all regulations to avoid unacceptable impacts.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Storage tanks would be removed or maintained in place according to required standards.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

IRP = Installation Restoration Program

OL = Operating Location

Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 5 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Storage Tanks (Cont.)		<p>♦ Mitigations: Appropriate precautions to avoid damage to remaining USTs and piping systems during construction.</p> <p>♦ Impacts: Removal and disposal of asbestos in facilities to be demolished. Remaining asbestos would be managed in accordance with applicable regulations to minimize potential risk to human health or the environment.</p>	<p>♦ Mitigations: Same as Proposed Action.</p> <p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Mitigations: Same as Proposed Action.</p> <p>♦ Impacts: Same as Proposed Action.</p>	
Asbestos	<p>Conditions: Asbestos posing a health risk will be remediated. Remaining asbestos will be managed in accordance with Air Force policy.</p>				<p>♦ Impacts: Continued management of asbestos in accordance with Air Force policy.</p>
Pesticide Usage	<p>Conditions: Pesticides used by military activities are managed in compliance with applicable standards.</p>	<p>♦ Impacts: Increased use associated with civilian development. Management in accordance with FIFRA and state guidelines would preclude unacceptable impacts.</p> <p>♦ Impacts: No impacts.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: No change in usage or management practices.</p>
Polychlorinated Biphenyls (PCBs)	<p>Conditions: All federally regulated PCBs removed and properly disposed of prior to realignment.</p>		<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

PCBs = polychlorinated biphenyls

USTs = underground storage tanks

FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act

Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 6 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Radon	Conditions: No facilities that were tested had registered radon levels above 4 pCi/l.	Impacts: No impacts.	Impacts: No impacts.	Impacts: No impacts.	Impacts: No impacts.
Medical/Biohazardous Waste	Conditions: Existing wastes removed prior to realignment. Minimal waste generated after realignment through military use of clinic.	Impacts: No impacts.	Impacts: Same as Proposed Action.	Impacts: Proper management under applicable regulations would avoid unacceptable impacts.	Impacts: Same as Proposed Action.
Ordnance	Conditions: No unexploded ordnance disposal sites on base.	Impacts: No impact.	Impacts: No impact.	Impacts: No impact.	Impacts: No impact.
Natural Environment Soils and Geology	Conditions No ground disturbance.	Impacts: Minor erosion effects from 337 acres of ground disturbance on base over the 20-year study period. Potential erosion impacts from 850 acres of ground disturbance in the RPA planning area, which would include development of a new airfield at the end of the 20-year study period.	Impacts: Minor erosion effects from 295 acres of ground disturbance on base and 662 acres in RPA planning area over the 20-year study period.	Impacts: Minor erosion effects from 114 acres of ground disturbance on base and 322 acres in RPA planning area over the 20-year study period.	Impacts: Minor erosion effects from 69 acres of ground disturbance on base and 325 acres in RPA planning area over the 20-year study period.

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

pCi/l = picocuries per liter

RPA = Rickenbacker Port Authority

Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 7 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Soils and Geology (Cont.)		<p>◆ Mitigations:</p> <p>Use standard techniques such as protective cover and diversion dikes to minimize erosion during and after construction.</p>	<p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>
Water Resources	<p>Conditions:</p> <p>Adequate water supply for limited on-base demand.</p>	<p>◆ Impacts:</p> <p>Slight increase in ROI water consumption rates would not adversely affect water supply.</p> <p>Disturbance and development of 337 acres over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Use storm water run-off controls, minimize areas of disturbance and length of exposure, and stagger timing of construction/ demolition activities.</p> <p>Compliance with NPDES and local permit requirements for storm water and wastewater discharge.</p> <p>Landscape disturbed areas not dedicated to facility or support structure.</p>	<p>◆ Impacts:</p> <p>Slight increase in ROI water consumption rates would not adversely affect water supply.</p> <p>Disturbance and development of 295 acres on base and 662 acres in RPA planning area over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Slight increase in ROI water consumption rates would not adversely affect water supply.</p> <p>Disturbance and development of 114 acres on base and 322 acres in RPA planning area over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>No change in water demand; therefore, no draw down on ROI water supply.</p> <p>Disturbance of 69 acres on base and 325 acres in RPA planning area over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

ROI = region of influence

NPDES = National Pollutant Discharge Elimination System

RPA = Rickenbacker Port Authority

Rickenbacker ANGB Disposal and Reuse DEIS

**Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 8 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Air Quality	<p>Conditions:</p> <p>NO<sub>x</sub>: 1.84 tons/day  VOC: 3.09 tons/day  PM<sub>10</sub>: 0.72 tons/day  SO<sub>2</sub>: 0.34 tons/day  CO: 7.01 tons/day</p> <p>Limited air pollutant emissions generated from retained military activities and caretaker activities. Air Force will implement air emission controls in State Implementation Plan (SIP) as appropriate.</p>	<p>◆ Impacts:</p> <p>Reuse related emissions in 2004:</p> <p>NO<sub>x</sub>: 3.81 tons/day  VOC: 3.83 tons/day  PM<sub>10</sub>: 0.66 tons/day  SO<sub>2</sub>: 0.41 tons/day  CO: 11.82 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Control of fugitive dust and combustion emissions from construction activities.</p>	<p>◆ Impacts:</p> <p>Reuse related emissions in 2004:</p> <p>NO<sub>x</sub>: 4.71 tons/day  VOC: 4.74 tons/day  PM<sub>10</sub>: 1.09 tons/day  SO<sub>2</sub>: 0.58 tons/day  CO: 15.37 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Reuse related emissions in 2004:</p> <p>NO<sub>x</sub>: 2.45 tons/day  VOC: 3.42 tons/day  PM<sub>10</sub>: 0.64 tons/day  SO<sub>2</sub>: 0.33 tons/day  CO: 9.00 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Emissions in 2004:</p> <p>NO<sub>x</sub>: 1.99 tons/day  VOC: 2.96 tons/day  PM<sub>10</sub>: 0.43 tons/day  SO<sub>2</sub>: 0.24 tons/day  CO: 7.21 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

NO<sub>x</sub> = nitrogen oxides  
VOC = volatile organic compounds  
PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter  
SO<sub>2</sub> = sulfur dioxide  
CO = carbon monoxide  
SIP = State Implementation Plan

Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 9 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Noise	<p>Conditions:</p> <p>6,880 acres and 1,839 residents exposed to DNL 65 dB or greater due to aircraft operations.</p>	<p>Impacts:</p> <p>10,204 acres and 3,347 residents exposed to DNL 65 dB or greater due to aircraft operations in 2014.</p> <p>Mitigations:</p> <p>Re-accomplish FAR Part 150 to identify potential mitigations.</p>	<p>Impacts:</p> <p>9,908 acres and 3,218 residents exposed to DNL 65 dB or greater due to aircraft operations in 2014.</p> <p>Mitigations:</p> <p>Re-accomplish FAR Part 150 to identify potential mitigations.</p>	<p>Impacts:</p> <p>Slightly increased operations would result in minimal noise impacts during 20-year study period.</p>	<p>Impacts:</p> <p>Same as Aviation with Mixed Use Alternative.</p>
Biological Resources	<p>Conditions:</p> <p>No ground disturbance.</p> <p>No threatened or endangered species on base. Forty-four small wetlands on base.</p>	<p>Impacts:</p> <p>Potential impacts to 111 small wetlands in total planning area, including 44 on base.</p> <p>Mitigations:</p> <p>Determine whether wetlands are jurisdictional. Wetlands mitigation could include avoidance through facility design, replacement, enhancement of wetland habitat, or control of construction-related erosion into nearby wetlands.</p>	<p>Impacts:</p> <p>Potential impacts to 93 small wetlands in total planning area, including 44 on base.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Same as Aviation with Industrial Park Alternative, but impacts may be more limited on base.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>No change in base-related activities. Limited potential for impacts to 44 small wetlands on base. Potential increase in habitat due to long-term decrease in human activity.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

DNL = day-night average sound level

dB = decibel

FAR = Federal Aviation Regulation



Table S-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 10 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Cultural Resources	<p>Conditions:</p> <p>No archaeological, native American, architectural or paleontological resources on base.</p>	<p>◆ Impacts:</p> <p>No archaeological, Native American, architectural, or paleontological resources on base. Potential for cultural resources on off-base areas to be developed by the RPA.</p> <p>◆ Mitigations:</p> <p>No mitigation necessary within base boundary.</p> <p>On off-base areas project proponents would be required to coordinate with Ohio SHPO and comply with the National Historic Preservation Act if federal funding is obtained or a federal permit is required for the project.</p>	<p>◆ Impacts:</p> <p>Same as Proposed Action.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Same as Proposed Action.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>No archaeological, Native American, architectural, or paleontological resources on base.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

RPA = Rickenbacker Port Authority

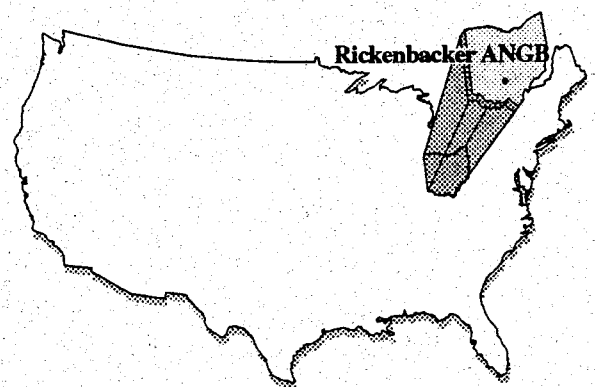
SHPO = State Historic Preservation Officer

Table S-3. Summary of Impacts from Other Land Use Concepts

Resource Category	Formal Proposals	Other Requests
<b>Local Community</b>		
♦ Land Use and Aesthetics	Potential incompatibilities with other planned uses.	Same as formal proposal.
♦ Transportation	No change in air traffic. Minor increases in surface traffic.	Same as formal proposal.
♦ Utilities	Minor increases in utility demand.	Same as formal proposal.
<b>Hazardous Materials and Hazardous Waste Management</b>		
♦ Hazardous Materials	Use of small quantities of household and industrial materials (aviation maintenance).	Use of small quantities of household materials.
♦ Hazardous Waste	Small quantities generated.	Same as formal proposal.
♦ Installation Restoration Program	No impact to remediation activities.	Same as formal proposal.
♦ Storage Tanks	No new storage tanks.	Same as formal proposal.
♦ Asbestos	Renovation of existing buildings may require removal and disposal and/or management in place.	Same as formal proposal.
♦ Pesticides	Small quantities to be utilized for landscaping.	Same as formal proposal.
♦ PCBs	Regulated PCBs will be removed by Ohio ANG.	Same as formal proposal.
♦ Radon	Not applicable.	Same as formal proposal.
♦ Medical/Biohazardous Wastes	Medical clinic subject to conformance with state regulations.	Not applicable.
♦ Ordnance	Not applicable.	Same as formal proposal.
<b>Natural Environment</b>		
♦ Soils and Geology	No new disturbance.	Same as formal proposal.
♦ Water Resources	No affect on water resources.	Same as formal proposal.
♦ Air Quality	Minimal new emissions.	Same as formal proposal.
♦ Noise	No new resources. Possible increase in receptors (residential facilities).	Same as formal proposal.
♦ Biological Resources	Human activities may disturb upland sandpiper.	Same as formal proposal.
♦ Cultural Resources	No impact.	Same as formal proposal.

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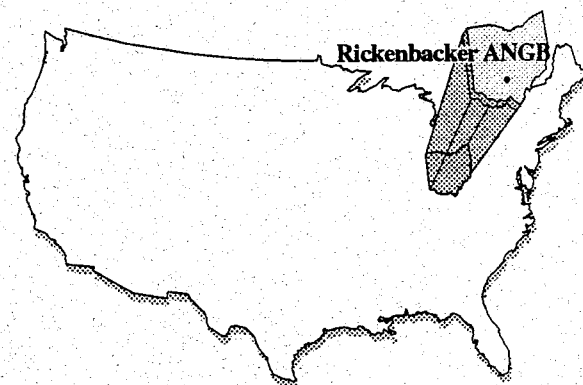
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## **CHAPTER 1**

# **PURPOSE AND NEED FOR ACTION**

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## 1.0 PURPOSE AND NEED FOR ACTION

---

This Environmental Impact Statement (EIS) examines the potential for impacts to the environment as a result of realignment and reuse of Rickenbacker ANGB, Ohio, as well as interim activities (e.g., interim outleases) that may be allowed by the Air Force before final base realignment. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations implementing NEPA. Appendix A presents a glossary of terms, acronyms, and abbreviations used in this document.

### 1.0 INTRODUCTION

On March 29, 1979, the Secretary of the Air Force announced a planned reduction of Air Force activities at Rickenbacker Air Force Base (AFB). The reduction involved a loss of people and aircraft. An EIS was completed in 1981 which examined the impacts of the actions resulting from the force reduction. The actions examined in the EIS were: 1) excess land resulting from the downsizing of forces at the base would be disposed of through the General Services Administration; 2) a joint-use agreement was proposed between the U.S. Air Force (USAF) and the Rickenbacker Port Authority (RPA) for use of the airfield and associated airport services; 3) a possible interim lease of the facilities to be excessed was proposed; and 4) the preliminary development of an industrial air park was addressed. The EIS projected potential impacts on noise and air quality.

The Draft EIS was released on 24 July 1981. Two public hearings were held in Groveport on 2 September 1981. Noise issues were mentioned more than any other. As a result, several sections of the Draft EIS which dealt with noise impacts were expanded for the Final EIS.

The Final EIS was released in October of 1981. Preferential runway use and operational turns on take-offs to avoid population concentrations were proposed as mitigations to noise impacts in the document. These specifically consisted of southerly arrivals and departures as often as weather would allow, and a 20° right turn after northerly takeoffs.

The noise analyses in the 1981 EIS were challenged in court. After an extensive hearing of motions, the court upheld most aspects of the EIS and noise analyses. The court did require that a key table containing data in the wrong columns which caused confusion to readers be reaccomplished in a Supplemental EIS. The Air Force chose not only to correct that table, but to update and improve the noise analyses as well. Draft Supplemental EIS results

1 were released in June of 1982 for incorporation into the 1981 EIS. The 45-day  
2 comment period on the supplemental analysis closed on 30 August 1982 with  
3 the public hearing having been held on the 11th of August.

4 Specific noise mitigations in the Final Supplemental EIS, released in October of  
5 1982, included: southwest arrivals and departures as often as weather would  
6 permit (particularly for civilian cargo aircraft); preferential runway use (use of  
7 runway 5R-23L allows aircraft to overfly less of the Village of Groveport on  
8 takeoff); and 40° right turns on northerly departures, also to avoid Groveport as  
9 much as possible.

10 In addition, the Air Force stipulated that "the RPA follow through on its  
11 commitment to perform periodic land use compatibility studies developed in  
12 cooperation with a community advisory committee as stated in the RPA letter to  
13 the Air Force included in Appendix M of the Supplemental EIS." This letter  
14 described "an airport area noise study" to be undertaken by the RPA in  
15 accordance with Federal Aviation Administration (FAA) guidelines. The FAA  
16 Part 150 Study for Rickenbacker Air National Guard Base (ANGB) was  
17 published in May of 1988.

18 The first Record of Decision (ROD) for Rickenbacker ANGB was signed in  
19 January of 1983. It approved joint military and civilian use of the airport under  
20 the terms of the joint use agreement and the interim lease with the following  
21 temporary restriction. "Between the hours of 11:00 p.m. and 7:00 a.m., no  
22 civilian multi-engine jet aircraft operations or any other civilian aircraft  
23 operations will be permitted which would exceed maximum A-weighted noise  
24 levels greater than 80 dBA from approaches over Groveport at the position  
25 designated as Point 1 in the Supplemental EIS."

26 On February 11, 1985, the Mayor of Groveport and the Chairman of the RPA  
27 signed an Agreement for Preparation of a Noise Reduction Plan. The RPA  
28 agreed to prepare a noise reduction plan for acceptance and adoption by the  
29 Board of Directors of the RPA and the Groveport Village Council. The noise  
30 reduction plan was to include a number of general provisions which detailed  
31 requirements for noise reduction, noise monitoring, home purchase in high noise  
32 areas, home improvements to reduce noise, aviation easements, zoning  
33 recommendations and continuing noise-related studies on local economics and  
34 land uses.

35 On April 10, 1985, a second ROD on Rickenbacker ANGB was signed. This  
36 ROD was signed as a result of the Agreement described above and a joint letter  
37 to Tidal McCoy (then Assistant Secretary of the Air Force for Manpower,  
38 Reserve Affairs and Installations) from the Chairman of the RPA and the Mayor  
39 of Groveport "agreeing that the parties are mutually agreeable to the lifting as of  
40 July 1, 1985 of the night civilian aircraft operation restriction." Mr. McCoy's

1 decision was based on implementation of "noise mitigations and related  
2 procedures provided for" in the agreement. This ROD removed the restriction  
3 on night operations (contained in the January 27, 1983 ROD).

4 The FAA Part 150 Study for Rickenbacker ANGB was completed in May of  
5 1988. This study contains a table from the Noise Reduction Plan which was  
6 prepared for the RPA by Lockheed Air Terminal, Inc. in March of 1983. The  
7 Plan contained 33 techniques for reducing cumulative noise exposure and  
8 improving land use compatibility in the vicinity of the airport. These  
9 recommendations are considered in Chapter Four of the Part 150 Study. The  
10 recommendations contained in the Agreement for Preparation of a Noise  
11 Reduction Plan are also evaluated in Chapter Four of the Part 150 Study.

12 Chapter Five of the Part 150 Study, entitled the Noise Compatibility Plan,  
13 contains the Noise Abatement Plan which consists of three noise abatement  
14 procedures which were determined to have no impact on airport operations.  
15 Two of these procedures were already in place at the time the study was  
16 completed. The three procedures were: for departing aircraft to hold the runway  
17 centerline on runway 23 departures to the southwest until achieving 3,800 feet  
18 above mean sea level to avoid overflying homes in the Duvall area; to formalize  
19 the existing noise abatement procedures for civilian aircraft, mandating the 40  
20 degree right turn on runway 5 departures to the northeast, and the preferential  
21 use and reverse flow procedures to the southwest; and to formalize the noise  
22 abatement procedures for military aircraft similar to those for civilian aircraft.

23 All of these procedures were proposed only for situations when weather  
24 conditions permitted. This portion of the study (Chapter 5) is intended to serve  
25 as the noise reduction plan agreed to by the Mayor of Groveport and the RPA.  
26 The Part 150 Study also includes examples of the proposed agreements  
27 formalizing the civilian and military noise abatement procedures, although  
28 neither the Mayor or the Village Council of Groveport are listed as signatories to  
29 these documents.

30 Two Environmental Assessments (EAs) addressing actions at the base have  
31 been prepared since the publication of the Part 150 Study. The first of these,  
32 published in July of 1991, addressed the disposal and reuse of additional excess  
33 Rickenbacker ANGB land and facilities and the conversion of the 160 ARG's  
34 KC-135E tankers to KC-135R models. The second EA, published in June of  
35 1992, examined three proposed actions: the conversion of the 907th Airlift  
36 Group of the Air Force Reserve from eight C-130Es to ten C-141Bs and the  
37 subsequent relocation of the unit to Wright-Patterson AFB near Dayton, Ohio;  
38 the relocation of the 160 ARG of the Ohio Air National Guard to Wright-  
39 Patterson AFB; and the conversion of the 121st Tactical Fighter Wing of the  
40 Ohio Air National Guard to the 121st Air Refueling Wing and the subsequent  
41 relocation of the unit to Wright-Patterson AFB. The actions addressed in the

second EA resulted from the 1991 Base Realignment and Closure Commission (Commission) decisions. Two of the relocation actions were later reversed by the 1993 Commission. These Commission decisions are addressed in more detail in Section 1.1 below.

## 1.1 PURPOSE AND NEED

Due to the changing international political scene and the resultant shift toward a reduction in defense spending, the Department of Defense (DOD) must realign and reduce its military forces pursuant to the Defense Base Closure and Realignment Act (DBCRA) of 1990 (Public Law [P.L.] 101-510, Title XXIX). DBCRA established new procedures for closing or realigning military installations in the United States.

DBCRA established an independent Defense Base Closure and Realignment Commission (Commission) to review the Secretary of Defense's base closure and realignment recommendations. After reviewing these recommendations, the 1991 Commission forwarded its recommended list of base closures and realignments to the President, who accepted the recommendations and submitted them to Congress on July 12, 1991. Since Congress did not disapprove the recommendations within the time period provided under DBCRA, the recommendations have become law. Rickenbacker ANGB was recommended for closure by the 1991 Commission.

After the 1991 Commission recommendations were announced, the State of Ohio proposed that, under the circumstances at the time, more money could be saved by leaving the two Air National Guard (ANG) tanker units at Rickenbacker ANGB than by relocating the units to Wright-Patterson AFB. This savings would result primarily from the State's burden-sharing proposal to lower the ANG's long-term operating costs at Rickenbacker ANGB. Community concerns related to possible negative impacts on unit recruitment and retention, caused by the move to Wright-Patterson AFB, also played a part in the Ohio proposal. The Dayton, Ohio area already has a recruiting shortfall and the local community felt that relocating additional ANG units to the area would make the situation worse.

In 1993, the Commission submitted a new list of recommended base closures and realignments. The 1993 Commission recommended that Rickenbacker ANGB be realigned rather than closed, and that the 121 Air Refueling Wing (ARW) and the 160 Air Refueling Group (ARG) move into a cantonment area on the present base and operate as a tenant of the RPA. These recommendations were accepted by the President and became law when Congress did not vote against the Commission recommendations. Realignment of Rickenbacker ANGB is scheduled to occur on September 30, 1994. Because Rickenbacker ANGB was on the 1993 Commission's list, the decision to realign the base is final.

To fulfill the requirement for reducing defense expenditures, the Air Force plans to dispose of excess and surplus real property and facilities at Rickenbacker ANGB. DBCRA requirements relating to disposal of excess and surplus property include:

- Environmental restoration of the property as soon as possible with funds made available for such restoration.
- Consideration of the local community's reuse plan prior to Air Force disposal of portions of the property.
- Compliance with specific federal property disposal laws and regulations.

The Air Force action, therefore, is to dispose of a portion of Rickenbacker ANGB property and facilities. Usually, this action is taken by the Administrator of General Services. However, DBCRA required the Administrator to delegate to the Secretary of Defense the authorities to utilize excess property, dispose of surplus property, convey airport and airport-related property, and determine the availability of excess or surplus real property for wildlife conservation purposes. The Secretary of Defense has since redelegated these authorities to the respective Service Secretaries.

## 1.2 DECISIONS TO BE MADE

The purpose of this EIS is to provide information for interrelated decisions concerning the disposition of Rickenbacker ANGB. The EIS is to provide the decision-maker and the public the information required to understand the future potential environmental consequences of disposal of portions of Rickenbacker ANGB as a result of potential reuse options at the base.

After completion of this EIS, the Air Force will issue a Record of Decision (ROD) on the disposal and reuse of portions of Rickenbacker ANGB. The ROD will determine:

- The methods of disposal available to the Air Force.
- The terms and conditions of reuse.

The methods of disposal granted by the Federal Property and Administrative Services Act of 1949 and the Surplus Property Act of 1944 and implemented in the Federal Property Management Regulations (FPMR) are:

- Transfer to another federal agency.
- Public benefit conveyance to an eligible entity.



- Negotiated sale to a public body for a public purpose.
- Competitive sale by sealed bid or auction.

In addition, amendments in the National Defense Authorization Act for 1994 (P.L. 103-160), Chapter XXIX, authorize conveyances of surplus property to local redevelopment authorities at discounted prices when a public benefit will result.

This EIS considers environmental impacts of the Air Force's realignment of the installation using one or all of the above-mentioned procedures and by portraying a variety of potential land uses to cover reasonable future uses of the property and facilities by others. Several alternative scenarios were used to group reasonable land uses and to examine the environmental effects of redevelopment of Rickenbacker ANGB. This methodology was employed because, although the realignment will have few, if any, direct effects, future use and control of use by others will create indirect effects. This EIS, therefore, seeks to analyze reasonable redevelopment scenarios to determine the potential indirect environmental effects of Air Force decisions.

### 1.3 DISPOSAL PROCESS AND REUSE PLANNING

DBCRA requires compliance with NEPA (with some exceptions) in the implementation of the base closures and realignments. Among the issues that are excluded from NEPA compliance are:

- The need for closing or realigning the installation.
- Analysis of alternative installations for closure or realignment.

The Air Force goal is to dispose of excess Rickenbacker ANGB property through transfer and/or conveyance to other government agencies or private parties. The Proposed Action in the EIS reflects the community's goal for base reuse, which is to develop Rickenbacker International Airport into a major air cargo and industrial facility.

The Air Force has based the Proposed Action on plans developed by the Rickenbacker Airport Planning Advisory Council (RAPAC) for the purpose of conducting the required environmental analysis. The Air Force also developed additional reasonable alternatives in order to provide the basis for a broad environmental analysis, thus ensuring that all reasonably foreseeable impacts resulting from potential reuse have been identified and the decision-maker has multiple options regarding ultimate property disposition. Subject to the terms of transfer or conveyance, the recipients of the property, planning and zoning agencies, and elected officials will ultimately determine the reuse of the property. Four alternatives have been identified, which include three aviation reuse proposals, and a No-Action Alternative, which would not involve reuse.

1 Because Rickenbacker International Airport already exists, and the Ohio  
2 National Guard will continue to conduct air operations, a non-aviation alternative  
3 was not considered viable.

4 The Secretary of the Air Force has full discretion in determining how the Air  
5 Force will dispose of the excess property. The services were authorized to issue  
6 additional regulations, if required, to implement their delegated authorities, and  
7 the Air Force has issued supplemental regulation 41 of the Code of Federal  
8 Regulations (CFR) 132. Another provision of the act requires the services to  
9 consult with the State Governor and heads of local governments or equivalent  
10 political organizations for the purpose of considering any plan for the use of such  
11 property by the local community concerned. Accordingly, the Air Force is  
12 working with state authorities and the Rickenbacker Port Authority (RPA) to meet  
13 this requirement.

14 In some cases, compliance with environmental laws may delay disposal of some  
15 parts of the base. Until property can be disposed of, the Air Force may execute  
16 interim or long-term leases to allow reuse to begin as quickly as possible. The  
17 Air Force would structure the leases to provide the lessees with maximum  
18 control over the property, consistent with the terms of the final disposal.  
19 Restrictions may be necessary to ensure protection of human health and the  
20 environment and to allow implementation of required remedial actions.  
21 Environmental analysis in the EIS encompasses those possible interim or long-  
22 term leasing decisions.

23 Certain activities inherent in the development or expansion of an airport  
24 constitute federal actions that fall under the statutory and regulatory authority of  
25 the Federal Aviation Administration (FAA). The FAA generally reviews these  
26 activities through the processing and approval of an Airport Layout Plan (ALP).  
27 Goals of the ALP review system are to: (1) determine its effectiveness in  
28 achieving safe and efficient utilization of airspace, (2) assess factors affecting  
29 the movement of air traffic, and (3) establish conformance with FAA design  
30 criteria. The FAA approval action may also include other specific elements,  
31 such as preparation of the Airport Certification Manual (Part 139); the Airport  
32 Security Plan (Part 107); the location, construction, or modification of an air  
33 traffic control (ATC) tower, terminal radar approach control (TRACON) facility,  
34 other navigational and visual aids, and facilities; and establishment of instrument  
35 approach procedures.

36 In view of its possible direct involvement with the partial disposal of  
37 Rickenbacker ANGB, the FAA is serving as a cooperating agency in the  
38 preparation of the EIS. If surplus property is conveyed to a local agency for  
39 airport purposes, the FAA would be the federal agency that would enforce deed  
40 covenants requiring the property to be used for airport purposes. Additionally,  
41 the FAA may later provide airport improvement program grants to the airport

1 sponsor (local agency taking title). The FAA also has special expertise and the  
2 legal responsibility to make recommendations to the Air Force for the disposal of  
3 surplus property for airport purposes. The Surplus Property Act of 1944 (50 U.S.  
4 Code [U.S.C.] Appendix 1622(g)) authorizes disposal of surplus real and related  
5 personal property for airport purposes and requires that the FAA certify that the  
6 property is necessary, suitable, and desirable for an airport.

7 The potential environmental impacts of airport development must be assessed  
8 prior to commitment of federal funding, in accordance with NEPA and FAA  
9 Orders 1050.1D, Policies and Procedures for Considering Environmental  
10 Impacts, and 5050.4A, Airport Environmental Handbook. Environmental  
11 impacts must be assessed prior to authorization of plans of local agencies for  
12 the development of the entire area in which the airport is located. Section 4(f) of  
13 the Department of Transportation (DOT) Act (recodified at 49 U.S.C., Subtitle I,  
14 Section 303) provides that the Secretary of Transportation shall not approve any  
15 program or project that requires the use of any publicly owned land from a public  
16 park, recreation area, or wildlife and waterfowl refuge of national, state, or local  
17 significance or land of an historic site of national, state, or local significance as  
18 determined by the officials having jurisdiction thereof unless there is no feasible  
19 and prudent alternative to the use of such land, and such program or project  
20 includes all possible planning to minimize harm resulting from the use.

21 Compliance with FAA regulations requires the preparation of a proposed airport  
22 development plan. This EIS presents the assessment of potential environmental  
23 impacts of available plans. Since the RPA is currently in the process of  
24 developing an Airport Master Plan, this EIS analyzes the environmental impacts  
25 of the plan to the level of detail known to date. The FAA may then use this  
26 document to complete their NEPA requirements. This EIS also provides  
27 environmental analysis to aid FAA decisions on funding requests for airport  
28 development projects. The RPA would be required to prepare a final ALP and  
29 submit it to the FAA, as appropriate, for approval.

#### 30 1.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

31 NEPA established a national policy to protect the environment and ensure that  
32 federal agencies consider the environmental effects of proposed actions in their  
33 decision-making. The President's Council on Environmental Quality (CEQ) was  
34 authorized to oversee and recommend national policies to improve the quality of  
35 the environment, and has published regulations that describe how NEPA should  
36 be implemented. The CEQ regulations encourage federal agencies to develop  
37 and implement procedures that address the NEPA process in order to avoid or  
38 minimize adverse effects on the environment. Air Force Regulation (AFR) 19-2,  
39 Environmental Impact Analysis Process (EIAP), addresses implementation of  
40 NEPA as part of the Air Force planning and decision-making process.

NEPA CEQ regulations, FAA Orders 1050.1D and 5050.4A, and AFR 19-2 provide guidance on the types of actions for which an EIS must be prepared. Once it has been determined that an EIS must be prepared, the proponent must publish a Notice of Intent (NOI) to prepare an EIS. This formal announcement signifies the beginning of the scoping period, during which the major environmental issues to be addressed in the EIS are identified. A Draft EIS (DEIS) is prepared, which includes the following:

- A statement of the purpose of and need for the action.
- A Description of the Proposed Action and alternatives, including the No-Action Alternative.
- A description of the environment that would be affected by the Proposed Action and alternatives.
- A description of the potential environmental consequences of the Proposed Action and alternatives, and potential mitigation measures.

The DEIS is filed with the U.S. Environmental Protection Agency (U.S. EPA), and is circulated to the interested public and government agencies for a period of at least 45 days for review and comment. During this period, a public hearing will be held so that the proponent can summarize the findings of the analysis and receive input from the affected public. At the end of the review period, all substantive comments received must be addressed. A Final EIS (FEIS) is produced that contains responses to comments as well as changes to the document, if necessary.

The FEIS is then filed with the U.S. EPA and distributed in the same manner as the DEIS. Once the FEIS has been available for at least 30 days, the Air Force may publish its ROD for the action.

#### **1.4.1 Scoping Process**

The scoping process identifies the significant environmental issues relevant to disposal and reuse and provides an opportunity for public involvement in the development of the EIS. The NOI (Appendix B) to prepare an EIS for disposal and reuse of portions of Rickenbacker ANGB was published in the Federal Register on October 9, 1991. Notification of public scoping was also made through local media as well as through letters to federal, state, and local agencies and officials and interested groups and individuals.

The scoping period for the disposal and reuse of Rickenbacker ANGB began on October 9, 1991. A public meeting was held on November 14, 1991, at the Franklin County Building, Columbus, Ohio, to solicit comments and concerns

1 from the general public on the disposal and reuse of the base. Ten people  
2 offered verbal comments at this meeting. Representatives of the Air Force  
3 presented an overview of the meeting's objectives, agenda, and procedures and  
4 described the process and purpose for the development of a disposal and reuse  
5 EIS.

6 A second scoping meeting was held at the Hamilton South Elementary School  
7 near Lockbourne, Ohio on May 3, 1994 to announce the changes to the  
8 proposed actions at Rickenbacker ANGB which were a result of the 1993 Base  
9 Closure and Realignment Commission's recommendation. Four people offered  
10 verbal comments at the meeting.

11 In addition to verbal comments, written comments were received during the  
12 scoping process. These comments, as well as information from previous Air  
13 Force projects, meetings with the RPA, and NEPA documents, were used to help  
14 determine the scope and direction of studies and analyses to accomplish this  
15 EIS.

## 16 1.5 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT

17 This EIS is organized into the following chapters and appendices: Chapter 2  
18 provides a description of the Proposed Action, reasonable alternatives to the  
19 Proposed Action, and other land use concepts that have been identified for  
20 reuse of Rickenbacker ANGB property. Chapter 2 also briefly discusses  
21 alternatives eliminated from further consideration. Finally, Chapter 2 provides a  
22 comparative summary of the effects of the Proposed Action and alternatives  
23 with respect to effects on the local community and the natural environment.  
24 Chapter 3 presents the affected environment under the baseline conditions of  
25 base realignment, providing a basis for analyzing the impacts of the Proposed  
26 Action and alternatives. When needed for analytical comparisons, a pre-  
27 realignment reference is provided for certain resource areas. It describes a point  
28 in time at or near the realignment announcement, and depicts an active base  
29 condition. The results of the environmental analysis are presented in Chapter 4  
30 and form the basis for the summary table at the end of Chapter 2. Chapter 5  
31 lists individuals and organizations consulted during the preparation of the EIS;  
32 Chapter 6 provides a list of the document's preparers; Chapter 7 contains  
33 references; and Chapter 8 contains an index.

34 In addition to the main text, the following appendices are included in this  
35 document:

- 36 • Appendix A - a glossary of terms, acronyms, and abbreviations used  
37 in this document.
- 38 • Appendix B - the NOI to prepare this disposal and reuse EIS.

- Appendix C - a list of individuals and organizations who were sent a copy of the DEIS.
- Appendix D - an Installation Restoration Program (IRP) bibliography.
- Appendix E - a description of the methods used to evaluate the impacts of base reuse on resources of the local community and the environment.
- Appendix F - a list of environmental permits held by Rickenbacker ANGB.
- Appendix G - Air Force policy regarding management of asbestos at bases that are closing.
- Appendix H - a detailed description of issues and assumptions related to noise effects.
- Appendix I - air emissions inventory for Rickenbacker ANGB.
- Appendix J - methodology used to assess air quality impacts.
- Appendix K - influencing factors and environmental impacts by land use category.
- Appendix L - a list of threatened, endangered, and other species of concern occurring on or near Rickenbacker ANGB.
- Appendix M - letters and accompanying Forms AD 1006 from the Air Force to the Soil Conservation Service regarding the occurrence of prime farmland on Rickenbacker ANGB.

## 1.6 RELATED ENVIRONMENTAL DOCUMENTS

The environmental documents listed below have been or are being prepared separately and address environmental issues at Rickenbacker ANGB. These documents provided supporting information for the environmental analysis.

- Final Basewide Environmental Baseline Survey, Rickenbacker Air National Guard Base, Columbus, Ohio. December 1993.
- Environmental Baseline Survey on Building S-5, Phase 1 Only. June 1993.
- Environmental Baseline Survey on Middle Marker, Facility Number 97000, Phase 1 Only. August 1992.

- Environmental Assessment of Three Currently Proposed Actions at Rickenbacker Air National Guard Base, Ohio. June 1992.
- Environmental Assessment of Two Proposed Actions at Rickenbacker Air National Guard Base. July 1991.
- IRP Bibliography (Appendix D)

## 1.7 FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

Federal permits, licenses, and entitlements that may be required of recipients of Rickenbacker ANGB for purposes of redevelopment are presented in Table 1.8-1.

Table 1.8-1. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property

Page 1 of 2

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
Title V permit under the Clean Air Act (CAA)	Any major source (source that emits more than 100 tons/year of criteria pollutant in nonattainment area for that pollutant or is otherwise defined in title 1 of CAA as a major source); affected sources as defined in Title IV of CAA; sources subject to Section 111 regarding New Source Performance Standards; sources of air toxics regulated under Section 112 of CAA; sources required to have new source or modification permits under Parts C or D of Title 1 of CAA; and any other source designated by U.S. EPA regulations.	Title V of CAA, as amended by the 1990 CAA Amendments	U.S. Environmental Protection Agency
National Pollutant Discharge Elimination System (NPDES) permit	Discharge of pollutant from any point source into waters of the United States.	Section 402 of Clean Water Act, 33 U.S.C. § 1342	U.S. Environmental Protection Agency
Section 404 (Dredge and Fill) permit	Any project activities resulting in the discharge of dredged or fill material into bodies of water, including wetlands, within the United States.	Section 404 of Clean Water Act, 33 U.S.C. § 1344	U.S. Department of Defense - Army Corps of Engineers, in consultation with U.S. Environmental Protection Agency
Hazardous waste treatment, storage, or disposal (TSD) facility permit	Owners or operators of a new or existing hazardous waste TSD facility.	Resource Conservation and Recovery Act (RCRA) as amended, 42 U.S.C. § 6091; 40 CFR 270	U.S. Environmental Protection Agency

CFR = Code of Federal Regulations

U.S.C. = U.S. Code



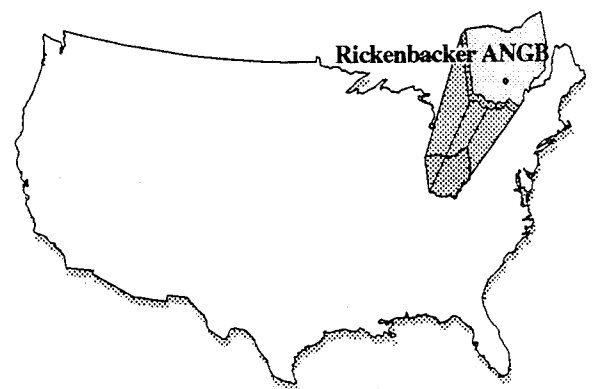
Table 1.8-1. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property  
Page 2 of 2

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Authority	Regulatory Agency
U.S. Environmental Protection Agency identification number	Generators or transporters (off-site transport) of hazardous waste.	40 CFR 262.10 (generators); 40 CFR 263, Subpart B (transporters)	U.S. Environmental Protection Agency
Archaeological Resources Protection Act permit	Excavation and/or removal of archaeological resources from public lands or Indian lands and carrying out activities associated with such excavation and/or removal.	Archaeological Resources Protection Act of 1979, 16 U.S.C. § 470cc	U.S. Department of the Interior - National Park Service
Endangered Species Act § 10 permit	Taking endangered or threatened wildlife species; engaging in certain commercial trade of endangered or threatened plants or removing such plants on property subject to federal jurisdiction.	Section 10 of Endangered Species Act, 16 U.S.C. § 1539; 50 CFR 17 Subparts C,D,F, and G.	U.S. Department of the Interior - Fish and Wildlife Service
Airport Operating Certificate	Operating a land airport serving any scheduled or unscheduled passenger operation of air carrier aircraft designed for more than 30 passenger seats.	Federal Aviation Act of 1958, 49 U.S.C. App. § 1432.	U.S. Department of Transportation - Federal Aviation Administration

CFR = Code of Federal Regulations

U.S.C. = U.S. Code

*Rickenbacker ANGB Disposal and Reuse DEIS*



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## **CHAPTER 2**

# **ALTERNATIVES INCLUDING THE PROPOSED ACTION**

## 2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

### 2.1 INTRODUCTION

This section describes the Proposed Action, reasonable alternatives to the Proposed Action, and the No-Action Alternative. In addition, potential federal agency transfers of Rickenbacker Air National Guard Base (Rickenbacker ANGB) properties and facilities from the Air Force are independent reuse options that are described and environmentally analyzed. Other alternatives that were identified but eliminated from further consideration are briefly described. The potential environmental impacts of the Proposed Action and alternatives are summarized in table form.

Generally, the Administrator of the General Services Administration (GSA) has authority to dispose of excess and surplus real property belonging to the Federal Government. With regard to realignment bases, however, the Defense Base Closure and Realignment Act (DBCRA) requires the GSA Administrator to delegate disposal authority to the Secretary of Defense. Federal Property Management Regulations (FPMR), which govern property disposal methods associated with base realignment, allow the Secretary of Defense to dispose of realignment property by transfer to another federal agency, by public benefit conveyance, by negotiated sale to state or local government, and by public sale at auction or sealed bid. In addition, amendments in the National Defense Authorization Act for 1994 (P.L. 103-160), Chapter XXIX, authorize conveyances to a local redevelopment authority at discounted price when a public benefit will result. These methods, or a combination of methods, could be used to dispose of property at Rickenbacker ANGB.

Provisions of DBCRA and FPMR require that the Air Force first notify other Department of Defense (DOD) departments that portions of Rickenbacker ANGB are scheduled for disposal. Any proposals from these departments for the transfer of Rickenbacker ANGB are given priority consideration.

Under Title V of 42 U.S.C. Section 11411, the Stewart B. McKinney Homeless Assistance Act, Federal agencies are required to report to the Secretary of the Department of Housing and Urban Development (HUD) information regarding unutilized, underutilized, excess and surplus Federal real properties that may be suitable for use as facilities to assist the homeless. These properties may be made available to States, units of local government, and nonprofit organizations operating as "homeless providers."

HUD will review the list of properties to determine their suitability to meet homeless needs. These properties will be advertised in the Federal Register and properties determined to be suitable will be held only for the purposes of assisting the homeless for a period of 60 days from the date of the Federal Register publication, during which time homeless providers will be able to express written interest to the U.S. Department of Health and Human Services (HHS) in the properties contained in the list published in the

1 Federal Register. This 60-day period is also effective for each subsequent  
2 publication of the property in the Federal Register.

3 HHS must receive completed applications for McKinney Act properties within  
4 90 days from the date the expression of interest was received. HHS then  
5 has to make a determination of approval within 25 days of receiving the  
6 completed application. If approved, the property will be assigned to HHS  
7 from the Air Force when it becomes surplus. HHS will then transfer the  
8 property, at no cost, to the approved homeless provider.

9 Prior to making property available for use to assist the homeless, the Air  
10 Force may consider other Federal uses and other important national needs.  
11 In deciding the disposition of surplus property, a priority of consideration will  
12 be given to uses which assist the homeless, unless it is determined that a  
13 competing request for the property which serves one of the public benefits  
14 specified under Title 40 U.S. C. Section 484(k) is so meritorious and  
15 compelling as to outweigh the needs of the homeless.

16 An Air Force Base Conversion Agency (AFBCA) Operating Location (OL)  
17 has been established at Rickenbacker ANGB. The responsibilities of the OL  
18 include coordinating post-realignment activities with the active force  
19 realignment activities, establishing a caretaker force to maintain Air Force-  
20 controlled properties after realignment, and serving as the Air Force local  
21 liaison to community reuse groups until lease termination, title surrender, or  
22 disposal (as appropriate) of the Air Force-controlled property has been  
23 completed. For the purposes of environmental analysis under all  
24 alternatives, it was assumed that this team would consist of approximately  
25 50 people at the time of realignment, conceptually composed of 10 Air Force  
26 employees and 40 non-federal supporting personnel. The OL, as used in  
27 this document, may refer to either the AFBCA or non-federal personnel.

28 In some cases, each group may have distinct responsibilities. For example,  
29 under the No-Action Alternative, the non-federal personnel would be  
30 responsible for the management and disposition of their own hazardous  
31 materials and waste. The Air Force OL would be responsible for inspection  
32 and oversight to ensure that hazardous substance practices on Air Force-  
33 controlled property are in compliance with pertinent regulations.

34 The U.S. Navy acquired about 25 acres from the Air Force in 1982 to  
35 operate a Naval Reserve Center. The property is on the north side of the  
36 runway at the northeast end of the airfield, and lies between State Route 317  
37 and existing Rickenbacker Port Authority (RPA) flightline property. The  
38 center has about 680 full-time and part-time reservists. This area is not  
39 being disposed of and will be retained by the Navy.

40 The Proposed Action consists of a proposal being developed by the RPA in  
41 their Airport Master Plan. This proposal has been reviewed by a local  
42 Planning Action Committee established by the RPA composed of local, state  
43 and federal officials, private citizens and business representatives. The  
44 Proposed Action includes a combination of aviation and industrial land uses  
45 and results in an international cargo airport at Rickenbacker International  
46 Airport. It includes the eventual acquisition of private land adjoining the  
47 airport to the southeast for the development of a new runway parallel to the  
48 existing runways.

1 The Aviation with Industrial Park Alternative is similar to the Proposed  
2 Action, but would not include airport expansion for the new runway. The  
3 airport would be limited to land already owned by the RPA or to being  
4 acquired as part of the Part 150 Noise Control Program, and land currently  
5 comprising Rickenbacker ANGB, which would be transferred and/or sold to  
6 the RPA.

7 The Aviation with Mixed Use Alternative includes residential, commercial  
8 and community/recreation uses in addition to aviation and industrial uses.  
9 Aviation activity would reflect a more moderate level of growth than under  
10 the Proposed Action or Aviation with Industrial Park Alternative, although  
11 military operations would remain the same.

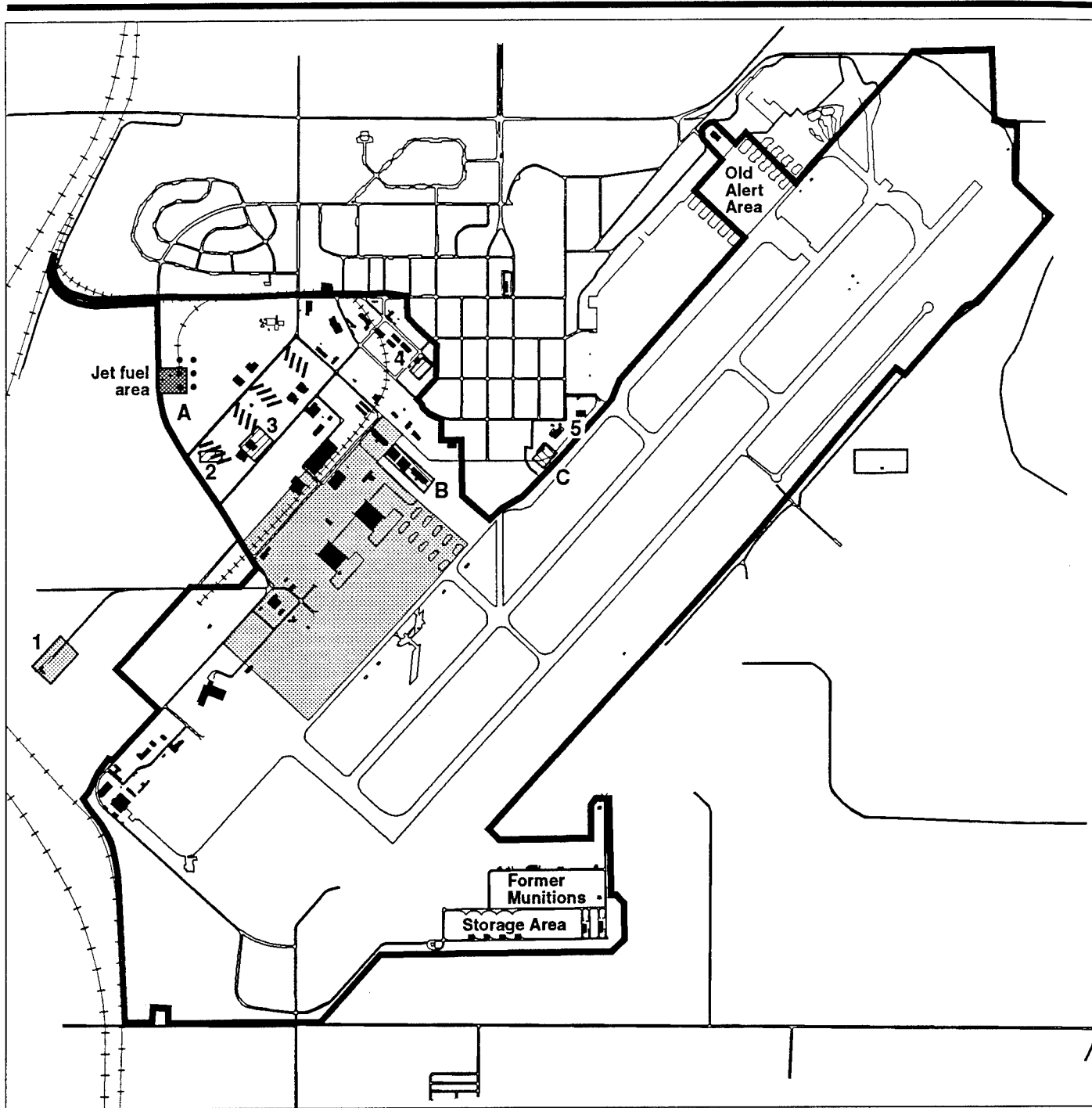
12 Under the No-Action Alternative, no land at Rickenbacker ANGB would be  
13 disposed of. Land currently leased by the RPA under both a 70-year and 50-  
14 year lease would continue to be used for aviation purposes. The Ohio Air  
15 and Army National Guard would remain in the cantonment area described  
16 below. The remainder of the base property would be maintained in  
17 caretaker status.

18 All of the reuse alternatives, including the No-Action Alternative, incorporate  
19 an Ohio Air National Guard area. This area will be retained by the U.S.  
20 Government and is not available for reuse by civilian organizations. Figure  
21 2.1-1 shows areas to be retained both permanently and temporarily (from 1  
22 to 5 years) by the U.S. Air Force.

23 Although each of the plans offered different levels of detail, all were  
24 conceptual in nature. In order to accomplish impact analysis, a set of  
25 general assumptions, was made. These assumptions include employment  
26 and population changes arising from implementation of each reuse plan,  
27 consistent land use designations for similar reuse options, proportion of  
28 ground disturbance anticipated for each land use type, transportation and  
29 utility effects of each proposal as a function of increased population growth  
30 due to redevelopment, and anticipated phasing of the various elements of  
31 each reuse plan (as measured at the realignment baseline, and at the  
32 baseline plus 5, 10, and 20 years). Details regarding the generation of these  
33 assumptions are found in Appendix E, Methods of Analysis. Specific  
34 assumptions developed for individual reuse plans are identified in the  
35 discussion of each proposal, within Sections 2.2 and 2.3.

36 The potential land acquisition identified under each alternative is described  
37 if: (1) the parcel's proposed use and/or development is expected to occur  
38 within the 20-year period covered by the analysis; (2) the area is intended to  
39 be set aside, as in the case of future airport expansion; or (3) the area is  
40 considered a buffer zone to prevent future noncompatible land uses.  
41 Specific discussions on land acquisitions subject to environment analysis are  
42 found within the appropriate land use category for each alternative.

43 During the development of alternatives addressed in this Environmental  
44 Impact Statement (EIS), the Air Force considered the compatibility of future  
45 land uses with current site conditions that may restrict reuse activities to  
46 protect human health and the environment. These conditions include  
47 potential contamination from past releases of hazardous substances and Air  
48 Force efforts to remediate the contamination under the Installation

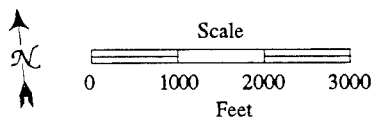


# EXPLANATIONS

- Areas to be permanently retained
- 1. Transmitter site
- 2. Communications Facility
- 3. Dining Hall and Clinic
- 4. Security Police
- 5. Fire Station

- Areas to be temporarily retained (1-5 years)
- A Jet fuel storage
- B Hangars 594, 595 and 596
- C Tower

**Areas to be Retained  
by the USAF at  
Rickenbacker ANGB**



**Figure 2.1-1**

1 Restoration Program (IRP). IRP remediation at Rickenbacker ANGB and  
2 other environmental studies may result in lease/deed restrictions that limit  
3 reuse options at certain locations within the base. Additionally, the Air Force  
4 may retain access rights to these sites to implement IRP remediation (e.g.,  
5 temporary easements for access to monitoring wells).

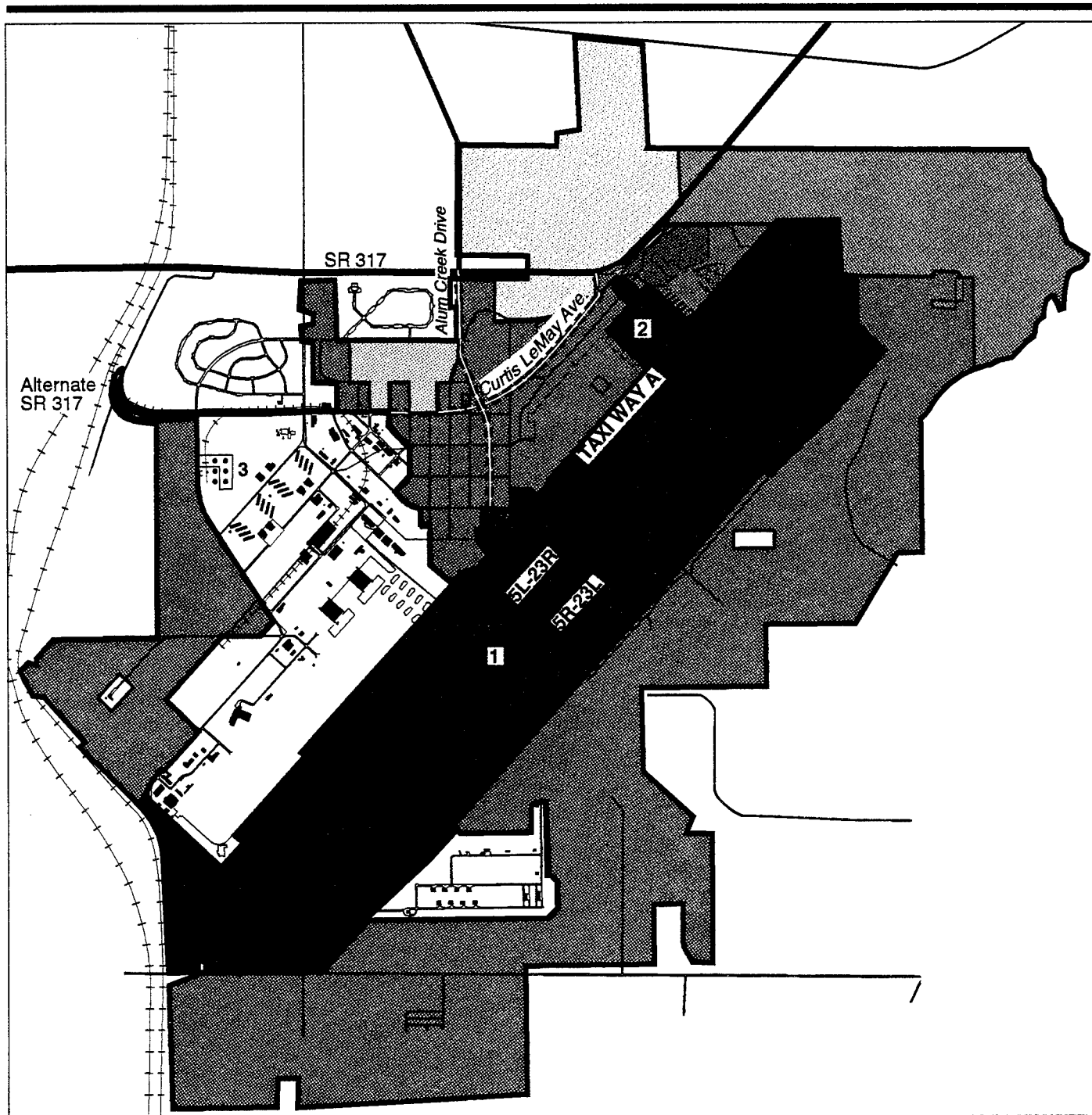
## 6 2.2 DESCRIPTION OF PROPOSED ACTION

7 Section 2905(b)(2)(E) of DBCRA requires the Air Force, as part of the  
8 disposal process, to consult with the applicable state governor and heads of  
9 local governments, or equivalent political organizations, for the purposes of  
10 considering any plan for the use of disposal property by the concerned local  
11 community. Air Force policy is to use the community's final plan for reuse or  
12 development of land and facilities as the Proposed Action in the  
13 Environmental Impact Statement (EIS), to the extent that it is available and  
14 in conformance with DBCRA.

15 In 1980, the Air Force withdrew active duty operations from Rickenbacker  
16 Air Force Base (AFB) and converted the base to an Air National Guard  
17 Base. As part of this conversion, portions of the base became excess to  
18 military needs. In anticipation of this, the Franklin County Commissioners  
19 formed the RPA in 1979. During the 1980s, about 2,082 acres of the base  
20 were excessed. Of this, 415 acres were sold to private developers, 25 acres  
21 were transferred to the U.S. Navy and 1,642 acres were acquired by the  
22 RPA through an airport public benefit transfer. In addition, the RPA holds a  
23 70-year lease for the airfield, comprised of 1,300 acres, a 50-year lease for  
24 29 acres adjacent to the airfield on the north side of Taxiway A used for  
25 aviation support, and a lease on three jet fuel storage tanks. This leased  
26 property is included in the current base realignment and disposal action. The  
27 RPA manages and operates Rickenbacker International Airport on land both  
28 owned and leased by the RPA. Property comprising Rickenbacker  
29 International Airport and the base is shown in Figure 2.2-1.

30 The RPA, as the community reuse organization, is developing the  
31 Rickenbacker International Airport Master Plan Update to define conceptual  
32 development of Rickenbacker International Airport to the year 2012. The  
33 RPA is working with it's Planning Action Committee composed of local,  
34 state, and federal officials, private citizens, and business representatives.  
35 The Planning Action Committee provides input to and review of the Airport  
36 Master Plan Update. The Airport Master Plan Update is scheduled for  
37 completion in mid-1994. The Air Force has used the Airport Master Plan  
38 and information from RPA planners in developing the Proposed Action and  
39 other alternatives for the Environmental Impact Analysis Process (EIAP).

40 The Proposed Action is a comprehensive reuse plan for an international air  
41 cargo airport, based on the community reuse plan defined by the RPA in the  
42 Airport Master Plan Update. The EIAP for disposal and reuse of portions of  
43 Rickenbacker ANGB examines impacts from the Proposed Action and  
44 alternatives over three phases of a 20-year planning horizon: 1994 to 1999,  
45 2000 to 2004, and 2005 to 2014. The Proposed Action reflects the RPA's  
46 plan for a combination of aviation and industrial land uses, with future  
47 expansion of the airport (including acquisition of additional, privately owned  
48 land) and the development of a new parallel runway. The property currently



#### EXPLANATION

- Rickenbacker Air National Guard Base Boundary (owned by U.S. Air Force)
- - - RPA boundary
- ==== Future Roadway
- U.S. Navy

- RPA lease areas
  - 1 Airfield
  - 2 Old Alert area
  - 3 Jet fuel storage
- Privately owned
- To be acquired by RPA for Noise Control Program
- Owned by RPA

#### Property Status at Rickenbacker International Airport

Figure 2.2-1



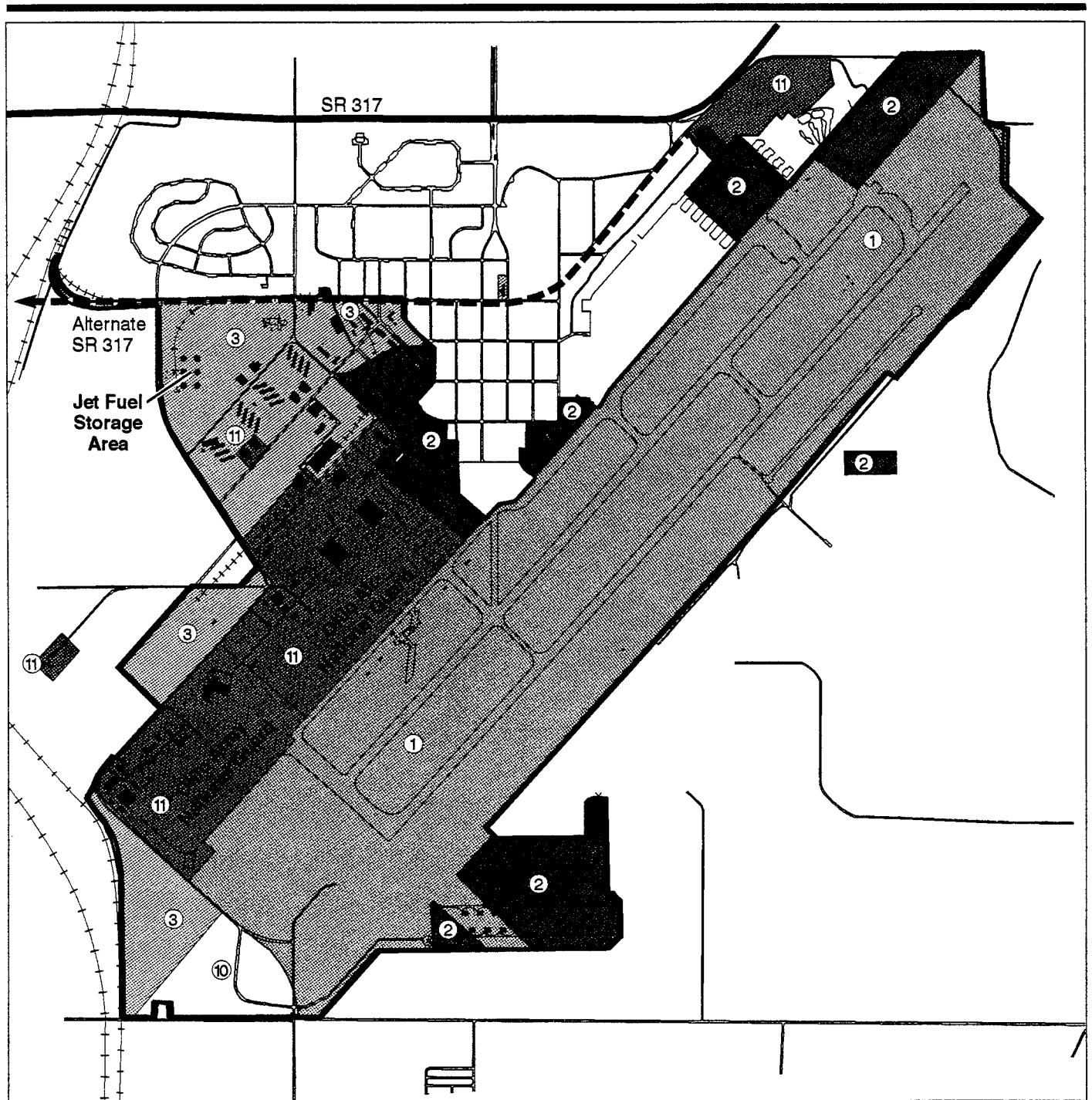
1 comprising Rickenbacker ANGB, excluding the enclave proposed for  
2 retention by the Ohio Army National Guard, the cantonment area to be  
3 retained by the Ohio Air National Guard, and possible other areas, would be  
4 acquired by the RPA through an airport public benefit transfer or a  
5 combination of transfer and acquisition at fair market value. Some areas  
6 may be transferred to other entities. Improvements would be made to the  
7 existing airfield and other facilities during the planning period, and a new  
8 runway would be added toward the end of the 20-year planning period. Air  
9 operations would increase significantly, and growth would be based on  
10 capturing demand from outside the area. Military operations currently  
11 include about 10,100 helicopter and 1,340 fixed wing operations by the Ohio  
12 Army National Guard and Ohio Army Reserve, and about 34,100 fixed wing  
13 operations by the Ohio Air National Guard and other military transient  
14 aircraft. These military operations are expected to continue at  
15 approximately these levels for the foreseeable future.

16 The proposed land uses within Rickenbacker ANGB (2,016 acres) are shown  
17 in Figure 2.2-2. This area is referred to as the "study area" in this document  
18 to distinguish it from the entire area addressed by the Rickenbacker  
19 International Airport Master Plan Update. The study area is comprised of  
20 approximately 1,112 acres designated as airfield, 246 acres as aviation  
21 support, 179 to be used by the Ohio Air National Guard, 129 to be used by  
22 the Ohio Army National Guard and Army Reserve, and 307 acres designated  
23 for industrial use. About 43 acres would remain open and undeveloped.

24 The Rickenbacker International Airport Master Plan Update encompasses  
25 6,552 acres in its planning area. This is comprised of 2,794 acres presently  
26 owned or controlled by the RPA, some land to be acquired as part of the  
27 Part 150 Land Use Management Plan (Chapter 5), and 1,717 acres which  
28 are planned for acquisition from private owners to accommodate the new  
29 runway and protection zones in the future. Although not currently part of the  
30 airport, the Master Plan's planning area also encompasses Rickenbacker  
31 ANGB and 25 acres owned by the U.S. Navy, which are surrounded by RPA  
32 property. Under the Proposed Action, the RPA would acquire 1,708 acres of  
33 the 2,016 acres comprising Rickenbacker ANGB from the Air Force pursuant  
34 to the base's realignment.

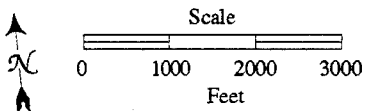
35 Figure 2.2-3 shows designated land uses for the entire RPA planning area in  
36 the twentieth year of the planning period and beyond. The land owned by  
37 the U.S. Navy is not identified for disposal, and although it is encompassed  
38 in the RPA's planning area, it is not included as part of this Proposed Action  
39 other than as a cumulative activity. Table 2.2-1 summarizes land use  
40 acreages for the study area and for the rest of the RPA planning area,  
41 excluding the Navy property.

42 The plan indicates that other developments could occur in the area that  
43 would support high growth and marketability of Rickenbacker, including  
44 reservation of land in the twenty-year planning period for a potential new  
45 intermodal transportation facility for the Norfolk and Western railway line. In  
46 addition, SR 317 would be widened from Groveport Road to Highway 23 to  
47 the west, either along its current alignment or along a new alignment along  
48 the north edge of the base. These two potential alignments of SR 317 are



# EXPLANATION

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| <b>1</b> Airfield                   | <b>6</b> *Commercial                |
| <b>2</b> Aviation Support           | <b>7</b> *Residential               |
| <b>3</b> Industrial                 | <b>8</b> *Public/Recreation         |
| <b>3</b> *Industrial - Warehousing  | <b>9</b> *Agriculture               |
| <b>4</b> *Institutional (Medical)   | <b>10</b> Vacant Land               |
| <b>5</b> *Institutional (Education) | <b>11</b> Military                  |
|                                     | <b>—</b> Rickenbacker ANGB Boundary |

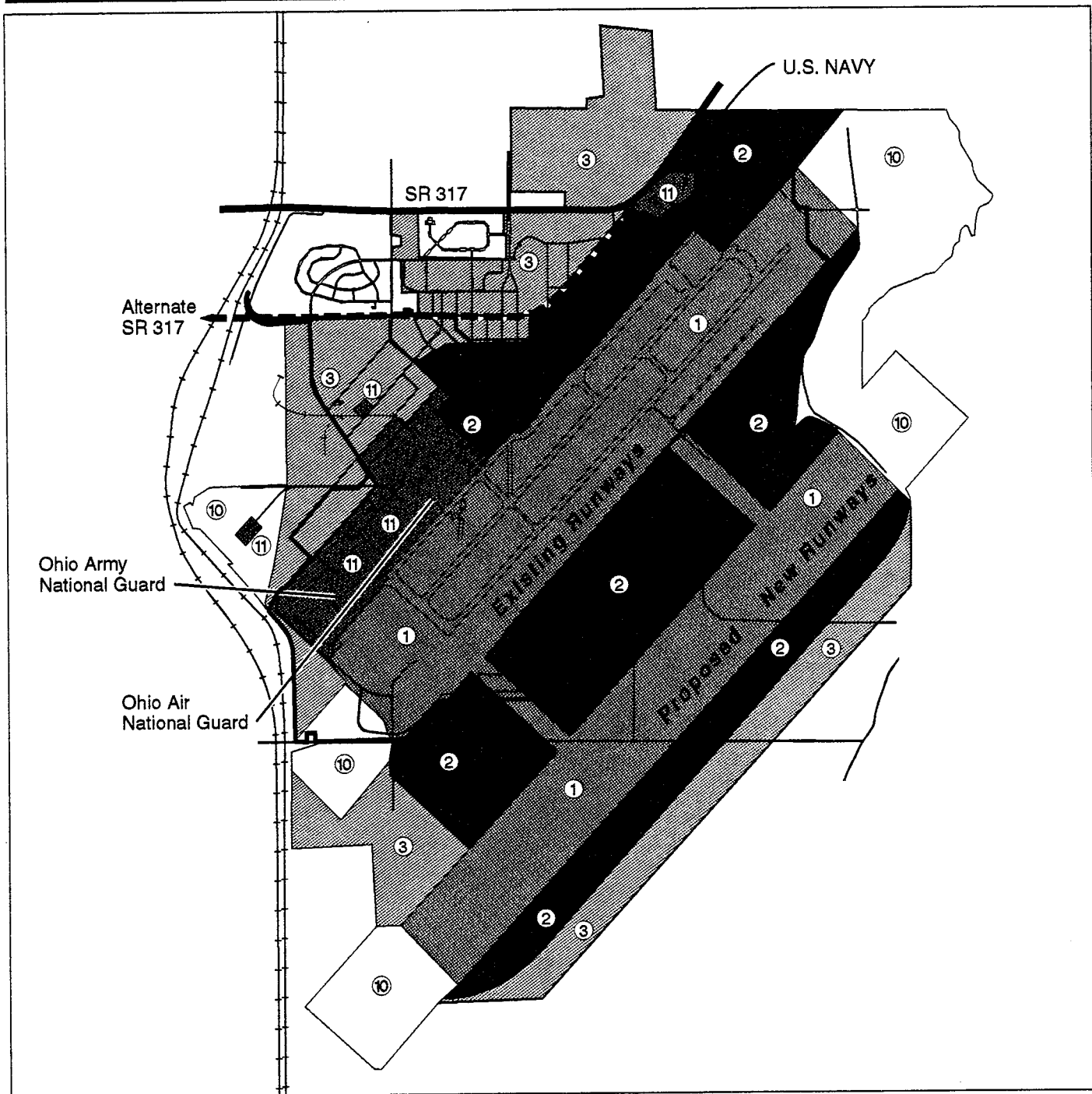


\* Not Applicable

## Proposed Action Study Area

Figure 2.2-2

Rickenbacker ANGB Disposal and Reuse DEIS

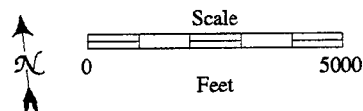


#### EXPLANATION

- 1 Airfield
- 2 Aviation Support
- 3 Industrial
- 3 \*Industrial - Warehousing
- 4 \*Institutional (Medical)
- 5 \*Institutional (Education)

- 6 \*Commercial
- 7 \*Residential
- 8 \*Public/Recreation
- 9 \*Agriculture
- 10 Vacant Land
- 11 Military
- Rickenbacker ANGB Boundary

\* Not Applicable



#### Proposed Action Total Planning Area

Figure 2.2-3

Rickenbacker ANGB Disposal and Reuse DEIS

shown in Figure 2.2-3. An economic development study to measure the benefits of realigning SR 317 is being conducted, as well as a study to evaluate the feasibility of different alignments.

**Table 2.2-1. Land Use Acreages - Proposed Action**

Land Use	Acreage	
	Study Area	RPA Planning Area <sup>(a)</sup>
Airfield	1,112	954
Aviation Support	246	1,492
Military	308	0
Industrial	307	1,158
Vacant	43	907
<b>Total</b>	<b>2,016</b>	<b>4,511</b>

Notes: <sup>(a)</sup> RPA land outside the study area. Excludes land owned by U.S. Navy.

These transportation projects contribute to a regional economic strategy to market the City of Columbus as an inland port and major distribution center. Rickenbacker International Airport would become the primary air cargo hub for central Ohio. As a national and international hub, air to truck and, to a lesser extent, air to rail connections would be utilized.

The RPA presently has established a Foreign Trade Zone (FTZ) that encompasses its property acquired from the U.S. Air Force in 1984, including some properties it has sold. This has attracted considerable development, principally warehousing, on the edge of the existing airport. FTZ status has allowed land prices to increase, offsetting some of the costs of developing land areas acquired from the Air Force in 1984. It is anticipated that land acquired from current base realignment activities would also become part of the FTZ as it becomes cost effective to develop portions of the study area.

Land uses within the total planning area would include airfield, aviation support, industrial, military, and vacant land. A proposed third runway would be flanked by aviation support areas, with industrial areas at the extremities of the airfield and beyond the aviation support areas. Land use restrictions could be implemented in the near future to prevent encroachment of incompatible development around future airfield areas. Land acquisition would continue in portions of Franklin and Pickaway Counties that fall in future airfield areas.

Land uses are divided into airside- and landside-related functions. Airside uses are dependent on flightline access or contribute to airfield operations as defined by the Federal Aviation Administration (FAA). They are designated as airfield or aviation support in the Airport Master Plan. Landside functions include manufacturing and warehousing development.

The general layout of proposed land uses within the study area, air operations projections, building reuse potential, location of the transportation improvements, and airfield improvements were derived from drafts of the Airport Master Plan Update and RPA development personnel. When specific data were not available from RPA planning documents, assumptions were generated to support analyses as follows:

- Ground disturbance in newly developed and previously used areas.
- Demolition scheduling.
- Level of development, based on floor-area ratios, zoning, existing physical constraints, and comparable development standards.
- Utilities demand.
- Vehicle trips generated by specific land use categories.
- Employment for specific land use categories.

The approximate amount of development, including demolition, reuse of existing facilities, and new facility construction for each land use in the study area, is provided in Table 2-2.2. Within the rest of the RPA planning area, some existing facilities, will likely be demolished, while existing aviation support facilities and hangars will continue to be retained and used. Approximately 5.5 million square feet of new facility construction is projected for the RPA planning area, outside the study area.

**Table 2.2-2. Facility Development - Proposed Action**

Land Use	Existing Facility Demolition (Floor Space in Thousands of Square Feet) <sup>(a)</sup>	Existing Facility Retention	New Facility Construction
<b>Study Area</b>			
Airfield	0	1	0 <sup>(b)</sup>
Aviation Support	117	97	411
Military	20	680	89
Industrial	608	114	2,390
Vacant	<1	0	0
<b>Total</b>	<b>745</b>	<b>892</b>	<b>2,890</b>

Notes: <sup>(a)</sup> Within the 20-year planning period.

<sup>(b)</sup> Runway not included as a facility.

The acreages within each land use assumed to be disturbed by construction of facilities, infrastructure improvements, or other operational activities are provided in Table 2.2-3 for three phases of development: 1994-1999, 2000-2004, and 2005-2014, referred to as first, second, and third phases of the planning period, respectively, throughout this document. All areas within the study area where ground disturbance would occur, including areas that are currently vacant, have been previously disturbed. Disturbance associated with runway maintenance, improvements to Runway 5L-23R, and

construction of a taxiway link would occur in the first phase. In the second phase, a second taxiway connecting the existing runways would be constructed, and improvements would be made to Runway 5R-23L. In the third phase, construction of a new parallel runway would occur. Most of the construction activity for the new runway would be located on RPA property. A new taxiway for Runway 5R-23L would use existing Runway 6-24 and disturb additional land within the study area (about 35 acres) in the third phase. All areas are assumed to have a small amount of disturbance through the planning period for maintenance and infrastructure projects.

**Table 2.2-3. Acres Disturbed by the Proposed Action**

Land Use	Acres Disturbed			
	1994-1999	2000-2004	2005-2014	Total
<b>Study Area</b>				
Airfield	9.1	10.4	37.0	56.5
Aviation Support	19.4	32.9	22.7	75.0
Military	12.9	3.1	19.1	35.1
Industrial	10.3	3.2	154.9	168.4
Vacant	0.4	0.4	0.9	1.7
<b>Total</b>	<b>52.1</b>	<b>50.0</b>	<b>234.6</b>	<b>336.7</b>
<b>RPA Planning Area<sup>(a)</sup></b>				
Airfield	4.8	4.8	136.9	146.5
Aviation Support <sup>(b)</sup>	178.3	54.1	146.0	378.4
Industrial	133.2	109.4	46.4	289.0
Vacant	9.1	9.1	18.1	36.3
<b>Total</b>	<b>325.4</b>	<b>177.4</b>	<b>347.4</b>	<b>850.2</b>

Notes: <sup>(a)</sup> Outside the study area.

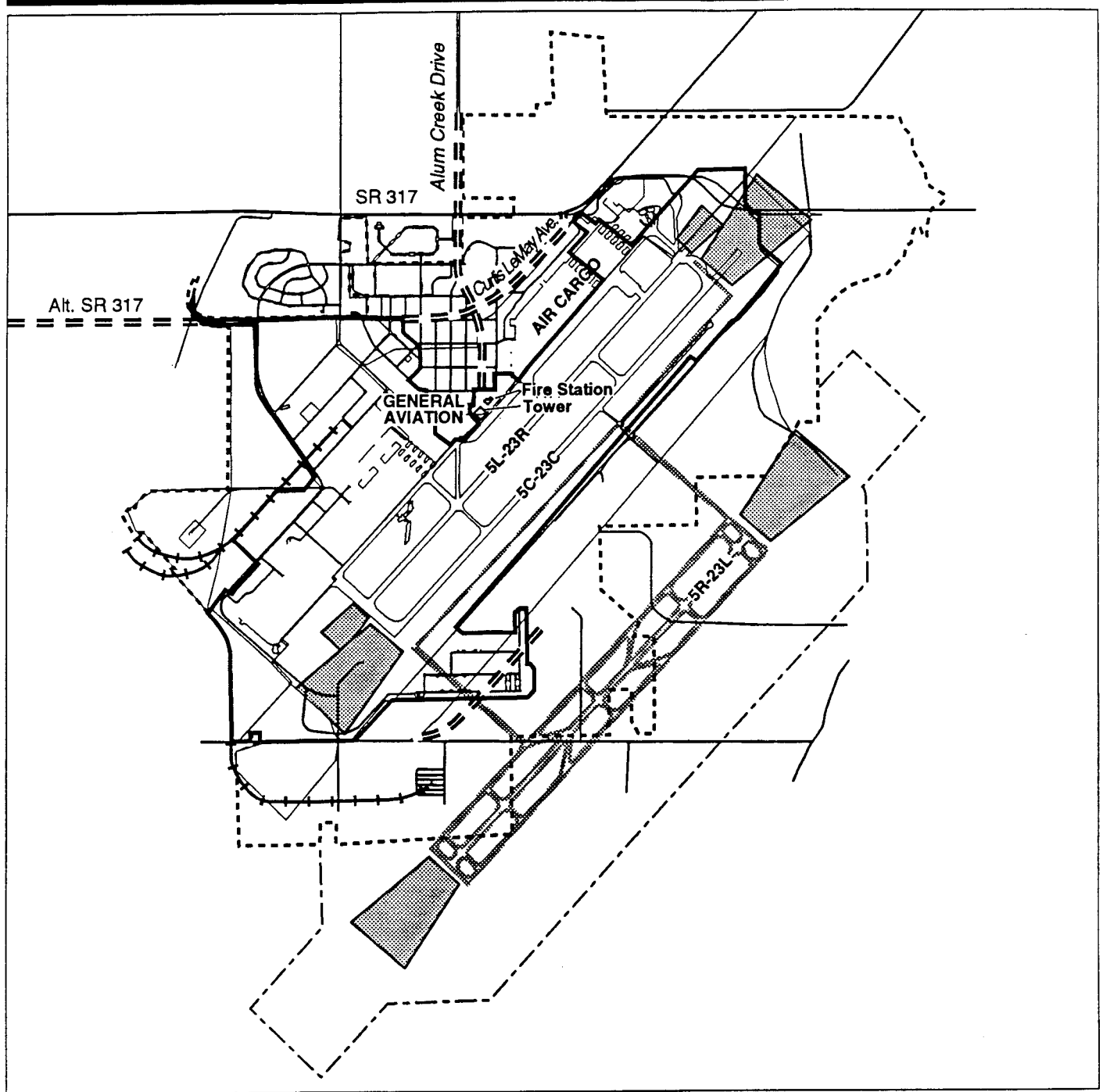
<sup>(b)</sup> Phasing of disturbance is estimated.

The sections below describe activities and developments associated with each land use category.

### 2.2.1 Airfield.

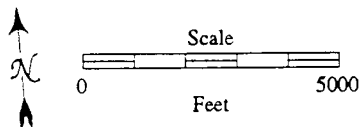
The total amount of land designated for airfield use for the Rickenbacker International Airport in 2014 is 2,066 acres, of which 1,112 acres are within the Rickenbacker ANGB study area. The airfield land use category comprises 55 percent of the land within the study area, centered on the existing runways, taxiways, and runway protection zones (RPZs). The Rickenbacker International Airport Master Plan Update indicates that certain improvements and changes would be made to the existing airfield.

An Airport Layout Plan (ALP) with the existing runway configuration has been on file with the FAA since 1985. A revised ALP has been developed for the proposed airfield (Figure 2.2-4) and was submitted to the FAA by the RPA in August, 1993. Review by the FAA is pending, and if approved, the revised ALP would replace then 1985 ALP.



# **EXPLANATION**

- Rickenbacker ANGB Boundary
- - - Rickenbacker Port Authority Boundary
- · · · Future Rickenbacker Port Authority Boundary
- ==== Future Roadway
- + + + Future Railway spurline
- ==== Future Runway and Taxiways
- ▨ Runway Protection Zones



## **Airport Layout Plan Proposed Action**

**Figure 2.2-4**

The airfield would be used by wide-body and narrow-body all-cargo aircraft, military aircraft, and general aviation aircraft of both piston and turbine types. Projected airfield operations are provided in Table 2.2-4 for the years 1999, 2004, and 2014. During the 20-year planning period, air cargo operations would continue to use Runway 5L-23R and 5R-23L about equally; 90 percent of military operations would use 5R-23L. General aviation operations would primarily use runway 5L-23R and Runway 6-24 for a small number of operations. The fleet mix within each of these three categories of operators is presented in Table 2.2-4. An operation is defined as one landing or one takeoff. However, the tower counts one operation each time an aircraft passes a runway threshold. Military sorties may be comprised of several operations if the pilot practices approaches and departures or performs "touch and go" maneuvers at the airfield in addition to the initial takeoff and final landing.

According to federal law, all jet aircraft weighing more than 75,000 pounds operating in the United States must conform to Stage 3 noise standards by the year 2000. After that year, 100 percent of the civil jet aircraft operating at Rickenbacker International Airport will meet Stage 3 noise standards. Since DC-8 and B-727 aircraft do not meet Stage 3 standards, operations by these types would discontinue by the year 2000. Military aircraft and non-jet aircraft, including multi-engine piston and turboprop aircraft, are not subject to Stage 3 regulations.

Night operations (10:00 p.m.-7:00 a.m.) projected for each class of operators for each phase of the planning period is also provided in Table 2.2-4. Approximately 80 percent of domestic air cargo operations, 20 percent of international air cargo, 5 percent of general aviation, and 3 to 5 percent of military operations would be at night. An estimated 574,370 tons of cargo would be handled at the airport in 1999, increasing to 745,570 tons in 2004 and 1,073,475 in 2014. For analysis purposes, a ton of air cargo is defined as one U.S. ton, and does not include the weight of the aircraft.

Flight tracks at the existing airfield would be the same as those currently used and are in accordance with the airport's Part 150 Study and Noise Control Program. Flight tracks are shown in Figures 3.2-13 and 3.2-14 and in Appendix H. New tracks will be developed for the proposed new runway and will meet standards defined in FAA Advisory Circular 150/5300-13.

In developing the ALP, shown in Figure 2.2-4, the RPA used FAA airfield layout separations and clearances and aircraft operating characteristics. It is assumed that existing airfield facilities and navigational aids would be retained by the airport after disposal of the property. The following improvements to the existing airfield area would be made:

- Maintain Runway 5R-23L (12,100 feet by 200 feet) to 800,000 pounds double-dual tandem wheel loading (DDTWL) (6th-10th year)
- Rehabilitate Runway 5L-23R (12,000 feet by 150 feet) to 700,000 pounds DDTWL (1st-5th year)
- Add taxiway exit from Runway 5R-23L to 5L-23R (800 feet by 75 feet) (6th-10th year)



Table 2.2-4. Projected Flight Operations - Proposed Action

Page 1 of 2

Year	Operation	Function	Percent <sup>(a)</sup>	Fleet Mix	Percent D/N <sup>(b)</sup>	Annual Operations
1999	Air cargo	Cargo	19.0	DC-8	20/80	5,445
			7.0	B-727	20/80	2,005
			40.5	B-757 <sup>(c)</sup>	20/80	11,610
			33.5	B-747 <sup>(c)</sup>	20/80	9,605
	Int'l air cargo	Cargo	50.0	AN-124 <sup>(c)</sup>	80/20	1,250
			50.0	IL-76 <sup>(c)</sup>	80/20	1,250
	General aviation	Private	47.6	Piston-single	95/5	24,905
			19.1	Piston-multi	95/5	9,965
			16.7	Turbo prop	95/5	8,715
			14.3	Turbo jet	95/5	7,475
			2.4	Rotary wing	95/5	1,245
	Ohio Army NG	Military	90.7	Rotary wing	95/5	7,810
			9.3	C-12	95/5	800
	U.S. Army Reserve	Military	80.7	Rotary wing	95/5	2,256
			19.3	U-21	95/5	540
	Ohio Air NG	Military	73.3	KC-135R	97/3	25,000
			7.0	C-130	97/3	2,400
			14.4	KC-135E	97/3	4,900
			5.3	Other <sup>4</sup>	97/3	1,800
						Total
2004	Air cargo	Cargo	0.0	DC-8	---	0
			0.0	B-727	---	0
			55.0	B-757 <sup>(c)</sup>	20/80	19,735
			45.0	B-747 <sup>(c)</sup>	20/80	16,145
	Int'l air cargo	Cargo	50.0	AN-124 <sup>(c)</sup>	80/20	1,995
			50.0	IL-76 <sup>(c)</sup>	80/20	1,995
	General aviation	Private	38.3	Piston-single	95/5	30,050
			21.7	Piston-multi	95/5	16,990
			20.2	Turbo prop	95/5	15,680
			15.0	Turbo jet	95/5	11,760
			5.0	Rotary wing	95/5	3,920
	Ohio Army NG	Military	90.7	Rotary wing	95/5	7,810
			9.3	C-12	95/5	800
	U.S. Army Reserve	Military	80.7	Rotary wing	95/5	2,256
			19.3	U-21	95/5	540
	Ohio Air NG	Military	73.3	KC-135R	97/3	25,000
			7.0	C-130	97/3	2,400
			14.4	KC-135E	97/3	4,900
			5.3	Other <sup>(d)</sup>	97/3	1,800
						Total

Table 2.2-4. Projected Flight Operations - Proposed Action

Page 2 of 2

Year	Operation	Function	Percent <sup>(a)</sup>	Fleet Mix	Percent D/N <sup>(b)</sup>	Annual Operations
2014	Air cargo	Cargo	0.0	DC-8	---	0
			0.0	B-727	---	0
			55.0	B-757 <sup>(c)</sup>	20/80	27,025
			45.0	B-747 <sup>(c)</sup>	20/80	22,110
	Int'l air cargo	Cargo	50.0	AN-124 <sup>(c)</sup>	80/20	4,135
			50.0	IL-76 <sup>(c)</sup>	80/20	4,135
	General aviation	Private	33.0	Piston-single	95/5	43,110
			21.6	Piston-multi	95/5	28,250
			23.9	Turbo prop	95/5	31,220
			14.8	Turbo jet	95/5	19,325
			6.8	Rotary wing	95/5	8,925
	Ohio Army NG	Military	90.7	Rotary wing	95/5	7,810
			9.3	C-12	95/5	800
	U.S. Army Reserve	Military	80.7	Rotary wing	95/5	2,256
	Ohio Air NG	Military	19.3	U-21	95/5	540
			73.3	KC-135R	97/3	25,000
			7.0	C-130	97/3	2,400
14.4			KC-135E	97/3	4,900	
5.3			Other <sup>(d)</sup>	97/3	1,800	
Total						233,741

Notes: <sup>(a)</sup> Percents may not be exact due to rounding.<sup>(b)</sup> Night operations occur between 10:00 p.m. and 7:00 a.m.<sup>(c)</sup> Stage 3 aircraft.<sup>(d)</sup> Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

D/N = Day/Night

NG = National Guard

Int'l = International

- Add taxiway exit from Runway 5L-23R to apron (700 feet by 75 feet) (1st-5th year)
- Install Category I Instrument Landing System (ILS) for Runway 5L (1st-5th year)
- Install Category II ILS (upgrade) for Runway 5R (1st-5th year)
- Install Approach Light System for Runway 5L (1st-5th year)
- Maintain Runway 6-24 (3,244 feet by 60 feet) for eventual use as taxiway (11th-20th year)

Toward the end of the third phase, a new 11,300-foot parallel runway and about 47,000 feet of taxiway would be constructed. Approximately 1,720 acres of additional land would be acquired by the RPA for construction and operation of the new runway, including land needed for runway protection and noise control zones. There would be a separation of 5,000 feet between the centerline of the new runway and existing runway 5R-23L. Existing runway 5R-23L would be redesignated as 5C-23C, and the new runway would become 5R-23L. Existing runway 5L-23R would keep this designation and continue to be used primarily for general aviation and some air cargo until the new runway is completed. At that time, existing runway 5L-23R would become a taxiway. Runway 5C-23C would continue to be used for most military and general aviation operations. New runway 5R-23L would be used primarily for air cargo operations. Both existing Runways 5R-23L and 5L-23R would be maintained to their maximum load bearing capacity for their entire length through the planning period. Existing navigation aids that are still in place after disposal would continue to be retained by the airport.

### **2.2.2 Aviation Support.**

The aviation support area would encompass 246 acres, or 12 percent of the study area. About 39 percent of land designated for aviation support would be absorbed in the study area in the 20-year planning horizon. The RPA designates about 1,492 acres for use for aviation support in its planning area (excluding the study area). Some of this acreage would be land acquired for the new parallel runway and about 1,300 acres would not be developed until beyond 2014. Currently, the control tower (Building 500) and fire station (Buildings 506 and 502) are located in aviation support areas adjacent to the airfield and will continue to be used by the Ohio Air National Guard (ANG) after realignment.

The RPA proposes to move general aviation activity from its current location next to the U.S. Navy on the northeast end of the airfield activity to a central location west of the existing tower, as shown in Figure 2.2-4. It is anticipated that the Fixed Base Operator (FBO) would move to this location. This would reduce taxiing distances for general aviation aircraft, which currently can be up to 2 miles. New hangars and some apron areas would be constructed, primarily on existing RPA property outside of the study area.

During the first phase, 34 acres of aviation support within the study area would be absorbed. This land is in two areas: one around the existing tower and one approximately at mid-airfield. These areas include 97,300 square

1 feet of reusable facilities, including hangar space, some support offices,  
2 snow equipment storage facilities, and the tower. Many facilities would be  
3 reused for airfield support functions or leased to tenants as hangar space.  
4 The Ohio ANG anticipates temporarily using hangars 594, 595, and 596 and  
5 the tower (Building 500) during the first phase. Building 538 has an interim  
6 lease for use as a pilot lounge and snack area (refer to Section 2.3.4.4.). It  
7 could be used as a flight training school with lounge and restaurant facilities  
8 in the future. About 29,000 square feet of facilities would be demolished  
9 and 80,000 square feet of new facilities would be constructed in the aviation  
10 support areas within the study area during the first phase.

11 During the second phase, 40 acres would be absorbed. Of this, 10 acres  
12 would be in the vicinity of the new general aviation facilities and could be  
13 used for corporate parcels and industrial air uses. It is estimated that there  
14 would be about 52,000 square feet of new construction in this location. The  
15 other 30 acres would be adjacent to the old alert facility and include mostly  
16 ramp space. It is anticipated that up to 157,000 square feet of air cargo  
17 facilities could be built in this area.

18 During the third phase, an additional 23 acres would be absorbed,  
19 completing the airside infill in the general aviation and corporate/air  
20 industrial area. About 2,000 square feet of facilities would be demolished  
21 and about 120,000 square feet of industrial air facilities would be  
22 constructed. In addition, a new tower (about 2,000 square feet) would  
23 probably be built during this phase in conjunction with new runway  
24 construction. The exact location of the tower is not known at this time.

25 By the end of the third phase, a total of about 300 acres of aviation support  
26 areas will also have been absorbed on existing RPA property on the north  
27 side of the airfield. About 200,000 square feet of general aviation facilities,  
28 1.78 million square feet of new air cargo facilities, and 27 acres of ramp  
29 space will have been built in addition to development in the study area.  
30 Combined with existing facilities, total cargo facilities would be close to a  
31 projected demand of about 3 million square feet by the year 2014. It is likely  
32 that some development would begin in aviation support areas between  
33 existing Runway 5R-23L and the new runway in the third phase as easily  
34 developed land and prime flightline locations are exhausted on the north  
35 side of the airfield. This development would be on existing RPA property at  
36 mid-airfield locations.

37 Beyond the 20-year planning period, 50 acres of aviation support land in the  
38 study area at the northwest end of the runway could be developed with air  
39 cargo facilities when Runway 5L-23R becomes a taxiway for the new parallel  
40 runway system. An additional 99 acres within the study area on the south  
41 side of the airfield, and about 1,192 acres of RPA property would be  
42 available for aviation use. Almost 9 million square feet of facilities could be  
43 constructed in the expansion area in the future.

44 Under the Proposed Action, the existing munitions storage area on the south  
45 side of the airfield would be used for aviation support development and  
46 intersected by a new taxiway crossing over to the proposed new parallel  
47 runway. The taxiway could cross over potential new access roads to new  
48 aviation support areas between the parallel runways.

### 2.2.3 Military.

**Ohio Air National Guard.** The Ohio ANG will continue to operate a unit at Rickenbacker airfield comprised of the previous 121 ARW and 160 ARG. To support the ANG's aerial refueling mission, about 179 acres of the existing base (about 9 percent of the study area) will be retained for Air National Guard use by the Air Force. Approximately 170 acres are contiguous to the airfield, between the proposed Ohio Army National Guard area and the proposed new general aviation area. The airside boundary of the Ohio ANG cantonment coincides with the object-free setback required by the FAA (discussed above). Five additional parcels comprising approximately 9 acres, associated with specific buildings and functions not currently expected to be replaced in the main cantonment area within the planning period, will also be retained. These parcels include the transmitter facilities, Buildings 901 and 902 (5.2 acres); communications equipment in Building 868 (0.3 acre); the dining hall and clinic in Buildings 863 and 864 (2.9 acres); the security alarm system in Building 370 (0.3 acres); and the fire station and equipment trailer, Buildings 502 and 506 (0.7 acres).

The Ohio ANG operates 20 KC-135R aircraft. Approximately 25,000 KC-135R operations are anticipated to be flown annually. About 3 percent of operations would occur at night (between 10:00 p.m. and 7:00 a.m.). About 90 percent of military fixed wing operations use Runway 5R-23L. In addition, approximately 9,100 annual transient military operations are expected at Rickenbacker.

Within the Ohio ANG cantonment area, approximately 362,000 square feet of facilities would continue to be used. About 184,000 square feet of these facilities would require minor renovations. These modifications would occur early in the first phase. In addition, new roads, fences, gates, and general site improvements within the cantonment area would also occur at this time. A new fuel storage facility close to the flight line is projected for the first phase. This facility would consist of two fuel storage tanks and a support building (about 4,000 square feet). When this project is complete, the Ohio ANG will no longer use the two tanks and facilities in the existing fuel storage area, and this temporary use area will be available for disposal.

New construction in the third phase (up to 71,000 square feet) could include a new Composite Support facility, dining hall, clinic, fuel cell, and fire station within the main cantonment area, depending on the availability of funding. If facilities being retained outside the main cantonment area are replaced within the cantonment, then it is possible that some additional facilities could be available for disposal in the future; however, this cannot be assured until funding is approved by Congress.

Transmitter equipment may eventually be moved within the cantonment area, and the outlying transmitter facilities and 5.2 acres may also be available for disposal in the future.

The RPA currently has a contract with the Ohio ANG to operate the tower (subcontracted to Barton, Inc.). Discussions about continuation of this contract have not been finalized. The Ohio ANG would continue to provide fire suppression services from the existing fire station. This facility is well

located and adequate to meet all airfield needs into the future. Snow removal services would continue to be operated by the RPA.

The old heat plant could be demolished at any time in the 20-year period when funds are available. The structure has asbestos-containing material and will require special demolition procedures. An additional 4,000 square feet may be demolished, as well.

**U.S. Army.** About 129 acres, or 6.4 percent of the study area, on the north side of existing Runway 5L-23R at the south end of Taxiway A would be transferred to the Department of the Army and used by the Ohio Army National Guard. Facilities in this area would be reused by the Ohio Army National Guard and U.S. Army Reserve. The Ohio Army National Guard operates helicopters (UH-1H, AH-15, and OH-50) and two twin-engine (C-12) aircraft. Approximately 8,600 operations are flown annually at Rickenbacker, of which about 5 percent are after 10:00 p.m. Night operations occur two nights every week and five nights 1 week a month for 3 to 4 months for a winter operations school. The Army Reserve will be operating air ambulance training with nine UH-1 and 2 U-21 aircraft. They are anticipated to conduct approximately 2,796 annual operations.

The Army helicopters use five fixed flight tracks in and out of the airfield. These are described in *Directive 55, Air and Ground Traffic Control Procedures, March 1993*, a joint-use directive established between the Air Force and the RPA. The tracks are designed to avoid fixed wing aircraft flight tracks and to provide noise abatement for surrounding communities.

The FAA prescribes an object-free area of 160 feet from the centerline of Taxiway A for airports serving larger aircraft, such as those projected to use Rickenbacker International Airport (FAA Advisory Circular 150/5800-13). Taxiway A is adjacent to the existing apron and is assumed to be 75 feet wide. This results in a 197.5-foot setback from the airside edge of Taxiway A within which aircraft may not be parked or facilities constructed. This object-free area extends slightly into the Army's cantonment area. There are several airfield waivers for existing structures and equipment in these object-free areas, which are mostly used for airfield functions and navigation. Beyond this area, structures must comply with designated maximum height restrictions.

No demolition is anticipated in this area. A new 14,000-square-foot dining facility would be constructed on the boundary of the enclave area, adjacent to the Ohio ANG cantonment. A small amount of ground disturbance would result in the first phase from new construction and over the 20-year planning period as a result of renovation and site improvements (see Table 2.2-3).

#### **2.2.4 Industrial.**

The Airport Master Plan for Rickenbacker International Airport identifies non-aviation land uses as "revenue producing," in accordance with FAA rules and regulations. These areas would account for about 1,465 acres of the total RPA planning area, including the study area. This category includes both general industrial uses, where light manufacturing and assemblage could occur using FTZ advantages, and industrial warehousing/distribution areas. A portion of the area between the new

runway and the existing airfield could be served by a new rail spur as development occurs beyond the 20-year planning period.

Approximately 307 acres, or 15 percent of the study area, would be developed for industrial uses. Of this, about 269 acres would have a mix of general industrial and manufacturing use. About 38 acres would be mostly used for warehousing and distribution centers. About 67 percent of industrial use land in the study area would be absorbed in the 20-year planning horizon.

No general industrial land in the study area would be absorbed in the first phase. A small parcel (about 1.4 acres) on the west side of Tank Truck Road would be absorbed in the second planning phase if an intermodal rail facility is developed between Canal Road and the existing base.

An area of 166 acres located north of the Ohio ANG cantonment, which includes the existing dorms, community facilities, automobile workshops, fuel storage area, and warehousing facilities, would be absorbed in the third planning phase for general industrial and manufacturing use. An additional 101 acres directly north and west of the Ohio Army National Guard cantonment would not be absorbed until beyond the planning period. A part of this 101 acres is in the vicinity of the old base landfill and may be undevelopable.

The only reusable industrial type facility that would be retained for permanent reuse is the Base Supply warehouse (113,855 square feet). Other facilities may be reused temporarily, but would eventually be replaced. In the third phase, about 522,000 square feet of facilities in the study area would be demolished to make way for about 1.93 million square feet of new industrial facilities.

Prior to demolition, it is anticipated that many of these facilities could be reused temporarily for some of the federal and independent proposals received by the Air Force (see Section 2.3.4) for use of these facilities. Possible reuses include continued operation of the gymnasium and billeting quarters. The Base Exchange (BX) could be operated as a day care and seniors' community center. The Officers Club could be operated as a restaurant and meeting area for the American Veterans. The remaining dormitories may have some potential for housing homeless during the first two phases of the planning period. Employment and population projections associated with interim uses are included in the Proposed Action projections in Section 2.2.6, and are discussed in Section 2.3.4.

Industrial warehousing and distribution is the primary revenue-producing use in the RPA's total planning area of development. About 38 acres on the north side of the airport in the study area would be developed with warehousing and distribution facilities. These areas are close to existing highway SR 317 and Alum Creek Drive, which provide access to the interstate highway system. About 10 acres in the study area would be absorbed in the first phase resulting in about 116,000 square feet of new construction. The remaining 28 acres would be absorbed in the third phase and involve about 347,000 square feet of construction.

Almost 380 acres of the RPA property have already been sold and developed on the north side of the airport in the vicinity of SR 317, Curtis LeMay Avenue, and Alum Creek Drive. An additional 120 acres in this same area is expected to be absorbed in the near future. Approximately 330 acres on the south side of the airfield would be developed for warehousing use beyond the planning period.

Currently, the telephone communication switchboard for the airport is located in a building on a non-contiguous parcel of Air Force land in the middle of the area currently being developed by the RPA. Portions of this building have been demolished for expansion of Curtis LeMay Avenue, but the remainder still houses communications switchboards that are not easily relocated and will remain in the near future. Most of the existing buildings in the industrial warehouse area within the study area are old warehouses constructed in the 1940s that are in poor condition. There are also some industrial and office facilities in good condition that could be used for office space during the first and second phases.

#### 2.2.5 Vacant Land.

Approximately 43 acres, or about 2 percent of the study area, would remain open and undeveloped in an area where development could interfere with navigation and where accident potential is higher at the ends of the runways. The land at the southwest end of the airfield is presently undeveloped. Within this area is one small guard shed (64 square feet), which would be demolished as new runway development occurs. An additional 907 acres of vacant land in the RPA planning area at the northeast and southwest ends of the existing and expanded airfield are in current or future runway protection zones and buffer areas. These lands would remain undeveloped.

#### 2.2.6 Employment and Population.

As shown in Table 2.2-5, the Proposed Action would include a total reuse-related employment of about 7,400 direct jobs in the study area by the year 2014, which represents an increase of about 4,000 jobs over the realignment baseline conditions. Total employment in the RPA planning area, outside the study area, would be about 10,200. In addition, the U.S. Navy would have about 115 full-time and 565 part-time jobs.

**Table 2.2-5. On-Site Employment and Population - Proposed Action**

	Realignment	1999	2004	2014
Study Area				
Direct Employment	3,312 <sup>(a)</sup>	3,737	4,039	7,358
Operations	3,312	3,696	4,002	7,153
Construction	0	41	37	205
On-Site Population	N/A	300	300	0

Notes: <sup>(a)</sup> Includes full-time and part-time jobs held by Ohio Army and Ohio Air National Guard and 45 current airport operators.

At realignment, approximately 3,312 jobs associated with the continuing military operations and base realignment will remain within the study area.



1 These include 692 full-time and 2,575 part-time military-related jobs. Part-  
2 time positions require one weekend of duty each month and 15 additional  
3 days during the year. An additional 45 full-time jobs are associated with  
4 operations of the airport by the RPA, and are included in the total 3,312 jobs  
5 at realignment. After realignment, construction activity associated with  
6 reuse development will contribute jobs in construction in addition to  
7 operations employment.

8 Employment in the study area shows the greatest increase in the third phase  
9 when industrial development occurs. A small residential population  
10 associated with interim reuses for billeting and housing would be lost late in  
11 the second phase, as these interim uses are replaced with permanent  
12 industrial development. About 37 jobs associated with interim uses would  
13 also be lost during the second phase and are reflected in Table 2.2-5.

14 Employment in RPA areas outside the study area is dominated by jobs  
15 associated with new warehouse development. Employment associated with  
16 general aviation and air cargo development would contribute to the first two  
17 phases. The third phase reflects projected industrial development within the  
18 study area. With development of a new runway, employment is likely to  
19 increase significantly beyond the twentieth year.

#### 20 **2.2.7 Transportation.**

21 Under the Proposed Action, SR 317 to the north of the base would be  
22 widened to a four-lane, divided, controlled-access highway between  
23 Groveport Road and U.S. Highway 23 to the west to provide a continuous  
24 four-lane route from I-70 to U.S. Highway 23. An ongoing study by Franklin  
25 County is currently evaluating alternative routes for the highway. One  
26 alignment under consideration would pass through the study area along  
27 Curtis LeMay Avenue and the existing rail spur, dividing the base from the  
28 housing area to the north. A second alternative under consideration is to  
29 upgrade the existing alignment of SR 317 north of the study area. Since this  
30 project has not been initiated officially through the Ohio Department of  
31 Transportation (ODOT), it is unlikely that construction would begin before  
32 the year 2000.

33 Current highway projects include a four-lane extension of Alum Creek Drive  
34 into the airport and construction of Curtis LeMay Avenue as a two-lane road  
35 (with additional right-of-way) from SR 317 into the airport.

36 Other roadways would be constructed within the expanded airport, but exact  
37 circulation patterns have not been determined. Within the study area, it is  
38 anticipated that Tank Truck Road, Second Street, and Club Road would be  
39 widened. Club Road would link with Shook Road, which may be widened to  
40 provide access between manufacturing and distribution facilities and SR  
41 317. Other construction would occur beyond the 20-year planning period.

42 Based on land use development and employment projections, total daily  
43 vehicular trips to and from the study area would be approximately 13,487  
44 per day by the year 2014. Air Cargo businesses largely operate at night and  
45 on weekends. Other warehousing businesses tend to operate during the  
46 day. Military use will be heavy on three weekends each month. Peak traffic  
47 is projected to be on weekends when Ohio Army and ANG units are training.

### 2.2.8 Utilities.

By the year 2014, activities associated with the Proposed Action in the study area would generate the following on-site utility demands:

- Water - 0.103 million gallons per day (MGD)
- Wastewater - 0.087 MGD
- Solid Waste - 9.5 tons per day (tons/day)
- Electricity - 84.3 Megawatt hours per day (MWH/day)
- Natural Gas - 8,778 therms/day

## 2.3 DESCRIPTION OF ALTERNATIVES

Two alternatives for the reuse of Rickenbacker ANGB, in addition to the No-Action Alternative, are being analyzed. Since the Ohio ANG and Ohio Army National Guard and Army Reserve units remaining at Rickenbacker require access to the airfield and the RPA will continue to operate the airport for joint use, a non-aviation alternative was not considered viable. The Aviation with Industrial Park alternative is similar to the Proposed Action but assumes that no new parallel runway would be developed. This alternative would concentrate aviation activity around the existing runway configuration. Aviation support activities and industrial development would occur on land within the study area and land currently owned by the RPA.

The Aviation with Mixed Use alternative assumes more modest growth of aviation activities and low industrial absorption. General aviation operations are assumed to increase in proportion to the number of locally based aircraft and FAA forecasts of 1.7 percent annual increase through the year 2003. This alternative includes reuse of three existing dormitories as billeting/hotel type facilities and four as a retirement community and veterans housing. Existing community-type facilities would be used for dining and recreation activities and as a community center for seniors and day care. A new medium-density housing area and landscaped park would be included in this alternative. This alternative also includes commercial office park development, primarily toward the end of the 20-year planning period.

### 2.3.1 Aviation with Industrial Park Alternative.

This alternative is similar to the Proposed Action, except it would not include expansion of the airport to provide a new runway. The airport would be limited to land already owned by the RPA, land that the RPA is acquiring under Part 150 Noise Control Program recommendations, and additional land currently comprising Rickenbacker ANGB, which would be transferred and/or sold to the RPA. Improvements to the existing airfield and facilities would be the same as under the Proposed Action, with the exception that Runway 5L-23R would be permanently maintained as a runway at 12,000 feet and 700,000 pounds DDTWL bearing capacity beyond the planning period for maximum airfield flexibility. The number of aircraft operations would be the same as under the Proposed Action (see Table 2.2-4).

The land uses within the study area (2,016 acres) are shown in Figure 2.3-1 and include 1,148 acres of airfield, 169 acres of aviation support, 308 acres for use by the Ohio ANG and Ohio Army National Guard, and 348 acres for industrial uses. Table 2.3-1 summarizes land use acreage for the study area. Concurrent development by the RPA on existing RPA land is assumed to continue. Land uses for the total RPA planning area are shown in Figure 2.3-2.

**Table 2.3-1. Land Use Acreages - Aviation with Industrial Park Alternative**

Land Use	Acreages	
	Study Area	RPA Planning Area <sup>(a)</sup>
Airfield	1,148	69
Aviation Support	169	646
Military	308	0
Industrial - General	269	466
Industrial - Warehouse	79	1,030
Vacant	43	583
<b>Total</b>	<b>2,016</b>	<b>2,794</b>

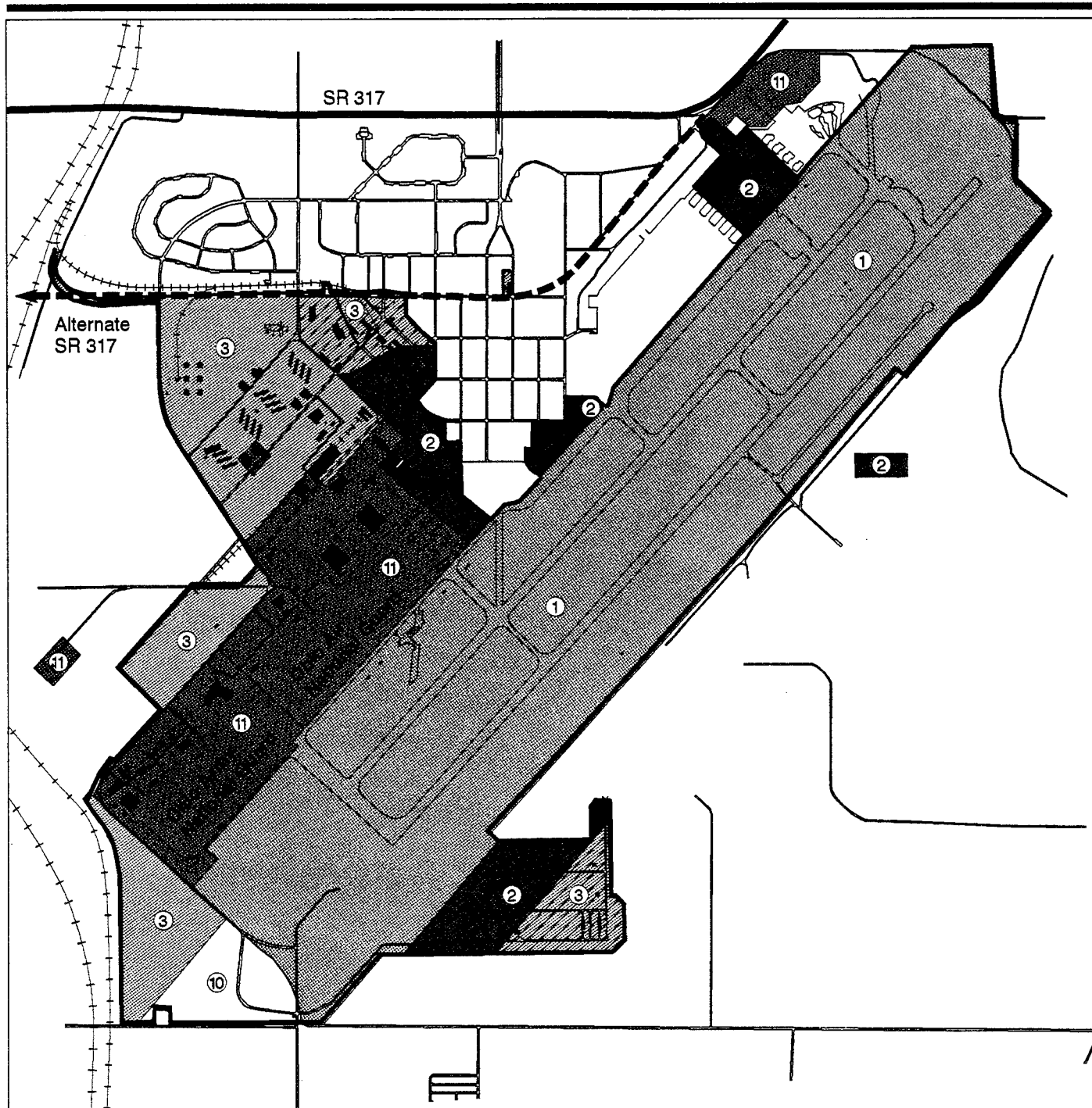
Notes: <sup>(a)</sup> Outside study area.

RPA projections for air operations and absorption of specific land use categories are incorporated in this alternative. However, this level of operations and development would be concentrated in a smaller land area. Overall land use designations reflect conditions similar to the 10-year planning window in the Rickenbacker International Airport Master Plan Update. When specific data were not available within RPA planning documents, assumptions were made to support analyses and are the same as those described in Section 2.2 for the Proposed Action.

The amount of development in the study area over the 20-year study period, including existing facility demolition and reuse and new facility construction, for each land use under the Aviation with Industrial Park alternative is provided in Table 2.3-2. Facility development in the RPA planning area outside the study area would be the same as under the Proposed Action during the 20-year planning period.

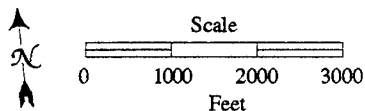
RPA projections for air operations and build out of specific land use categories are incorporated in this alternative. However, the proposed level of operations and development would be concentrated into a smaller land area.

The acreages within each land use disturbed by construction of facilities, infrastructure improvements, or other operational activities under this alternative are provided in Table 2.3-3 for three phases of development:



# EXPLANATION

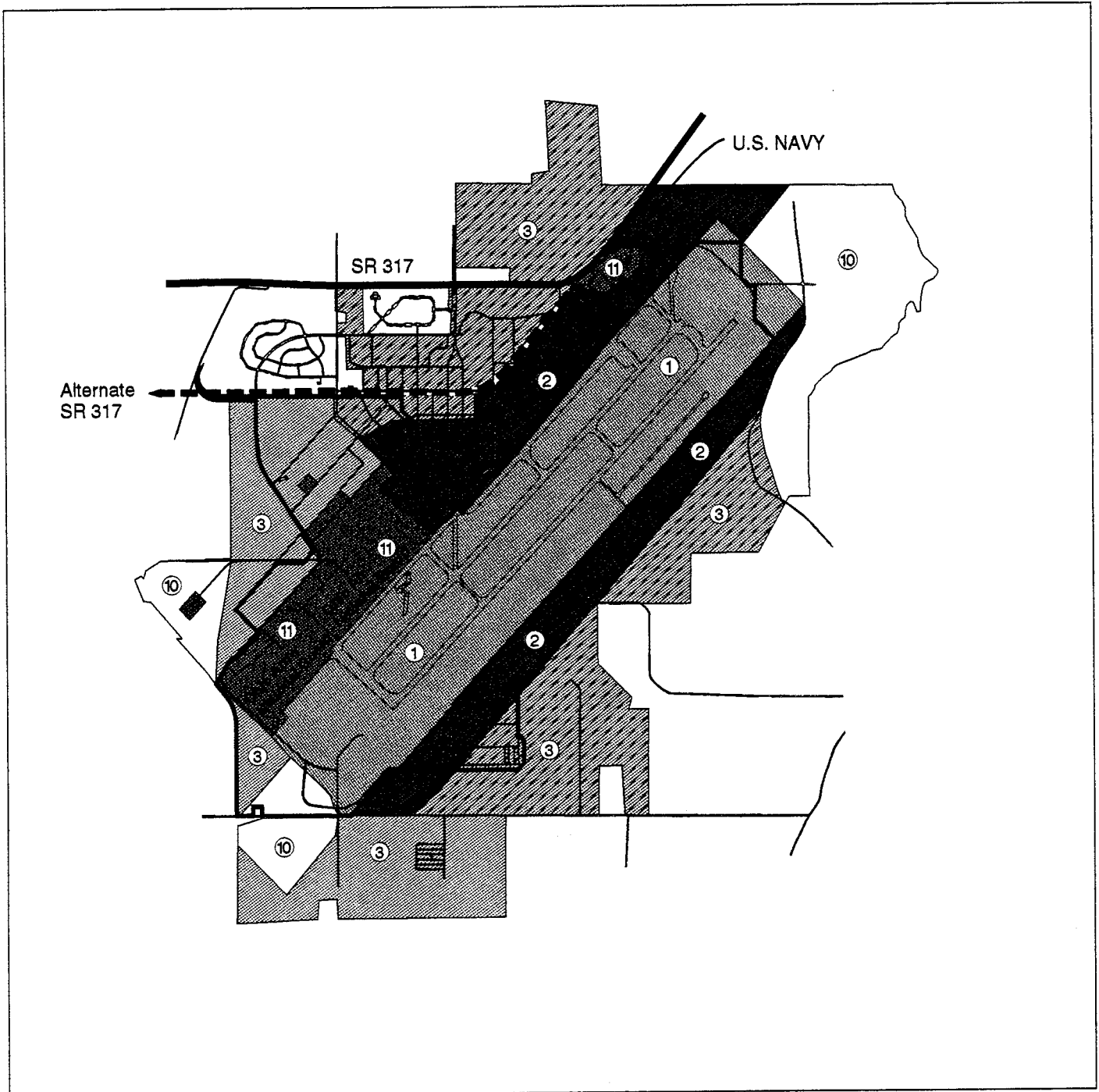
- |                              |                              |
|------------------------------|------------------------------|
| 1 Airfield                   | 6 *Commercial                |
| 2 Aviation Support           | 7 *Residential               |
| 3 Industrial - General       | 8 *Public/Recreation         |
| 3 Industrial - Warehousing   | 9 *Agriculture               |
| 4 *Institutional (Medical)   | 10 Vacant Land               |
| 5 *Institutional (Education) | 11 Military                  |
|                              | — Rickenbacker ANGB Boundary |



\* Not Applicable

## Aviation with Industrial Park Alternative Study Area

Figure 2.3-1



#### EXPLANATION

- |                              |                              |
|------------------------------|------------------------------|
| ① Airfield                   | ⑥ *Commercial                |
| ② Aviation Support           | ⑦ *Residential               |
| ③ Industrial - General       | ⑧ *Public/Recreation         |
| ③ Industrial - Warehousing   | ⑨ *Agriculture               |
| ④ *Institutional (Medical)   | ⑩ Vacant Land                |
| ⑤ *Institutional (Education) | ⑪ Military                   |
|                              | — Rickenbacker ANGB Boundary |



Scale  
0 5000  
Feet

\* Not Applicable

#### Aviation with Industrial Park Alternative Total Planning Area

Figure 2.3-2

1994-1999, 2000-2004, and 2005-2014. Disturbed acreage in the RPA planning area outside the study area would be similar to the Proposed Action in the first two phases and less in the third phase.

**Table 2.3-2. Facility Development - Aviation with Industrial Park**  
**Alternative**

	Existing Facility Demolition	Existing Facility Retention	New Facility Construction
Land Use	(Floor Space in Thousands of Square Feet)		
Study Area			
Airfield	0	2	0
Aviation Support	117	108	399
Military	20	680	89
Industrial - General	490	146	1,882
Industrial - Warehouse	87	2	459
Vacant	0	0	0
Total	714	938	2,829

**Table 2.3-3. Acres Disturbed by the Aviation with Industrial Park**  
**Alternative**

Land Use	Acres Disturbed			
	1994-1999	2000-2004	2005-2014	Total
<b>Study Area</b>				
Airfield	9.8	10.5	11.5	31.8
Aviation Support	11.9	32.2	21.2	65.3
Military	12.9	3.1	19.1	35.5
Industrial	2.7	57.8	68.7	129.2
Industrial - Warehousing	7.9	0.8	23.2	31.9
Vacant	0.4	0.4	0.9	1.7
<b>Total</b>	<b>45.6</b>	<b>104.6</b>	<b>144.6</b>	<b>295.0</b>
<b>RPA Planning Area</b>				
Airfield	0.4	0.4	.7	1.5
Aviation Support	153.2	45.6	129.1	327.9
Industrial	4.7	102.5	18.6	125.8
Industrial-Warehousing	131.9	10.3	41.2	183.4
Vacant	5.8	5.8	11.7	23.3
<b>Total</b>	<b>296.0</b>	<b>164.6</b>	<b>201.3</b>	<b>661.9</b>

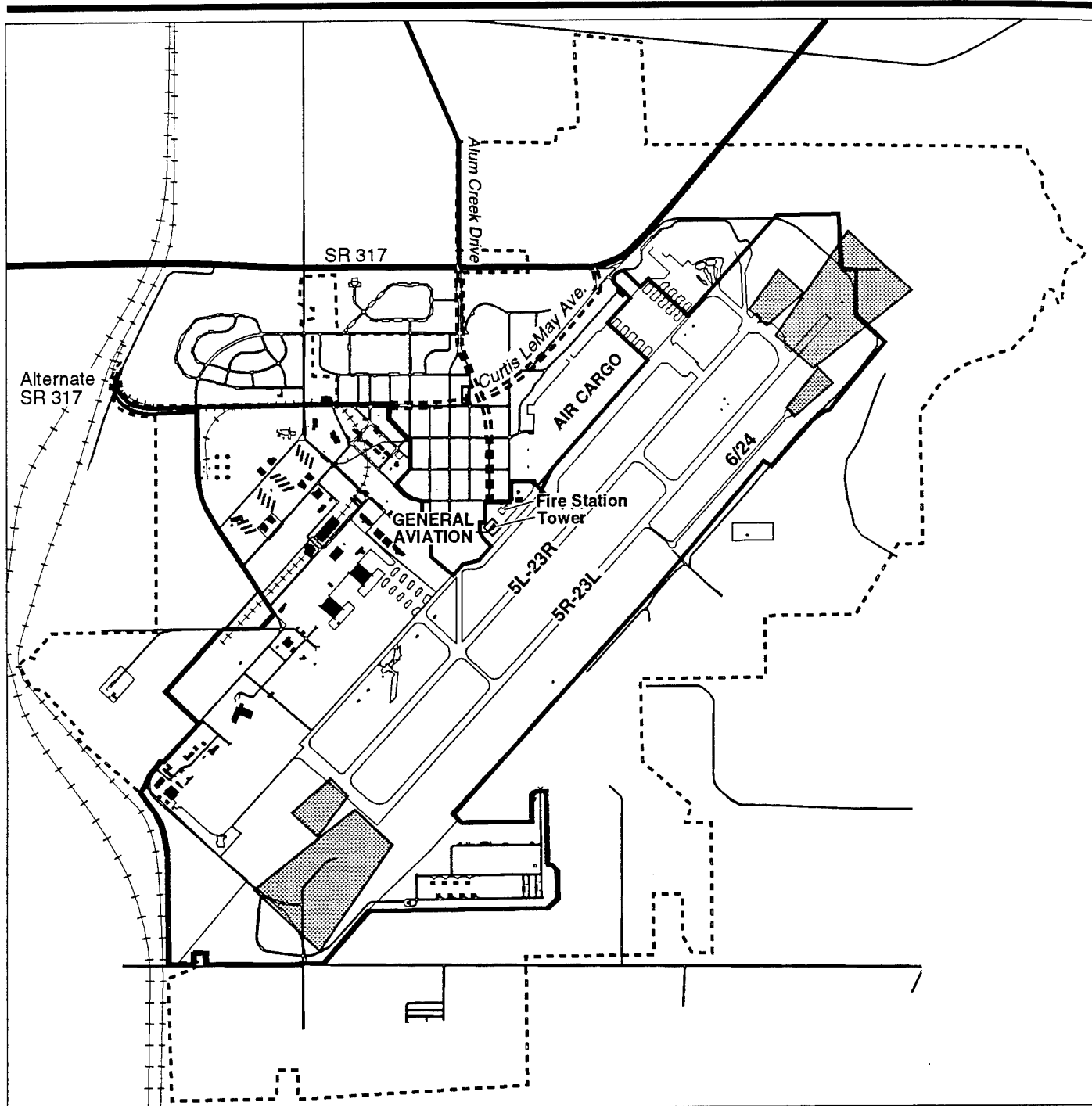
Activities and developments for each land use category are described in the following sections.

**2.3.1.1. Airfield.** The airfield land use category includes 1,148 acres, or 57 percent of the study area. The airfield would be used for a combination of air cargo, general aviation, and military uses. The airfield area is centered on the existing runways and taxiways, including the lateral runway clearance areas and the RPZs. It coincides closely with the area currently leased to the RPA. The ALP would be similar to the existing plan for the airport and is shown in Figure 2.3-3. It includes land being acquired by the RPA at the northeast end of the existing runways as part of the Part 150 Noise Control Program.

The airfield would continue to be used by wide-body and narrow-body all-cargo aircraft, military aircraft (both rotary wing and large tankers), and general aviation aircraft of both piston and turbine types. Aircraft operations associated with this alternative would be the same as for the Proposed Action and are provided in Table 2.2-4. Air cargo and general aviation operations and fleet mix, air cargo projections, and improvements to existing airfield pavements would be the same as for the Proposed Action.

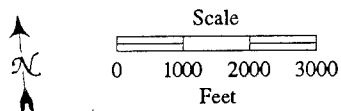
Under this alternative, the airfield would continue to operate in a similar manner to current operations. Runway 5R-23L, with the greatest load-bearing capacity, would continue to be the primary runway for military operations and for half of the air cargo operations. The pavement strength of the runway is anticipated to remain adequate for the next 10 years, but would require timely maintenance late in the second phase of the planning period. Runway 5L-23R is used by air cargo and general aviation operations. Sections of Runway 5L-23R are in poor condition at present, and the runway would require rehabilitation in the first phase. This runway would be maintained to its maximum bearing capacity in the future to provide the greatest flexibility for operating large military and cargo aircraft. Airfield improvements include:

- Add taxiway exit from Runway 5R-23L to 5L-23R (800 feet by 75 feet) (6th-10th year)
- Add taxiway exit from Runway 5L-23R to apron (700 feet by 75 feet) (1st-5th year)
- Install Category I ILS for Runway 5L (1st-5th year)
- Install Category II ILS (upgrade) for Runway 5R (1st-5th year)
- Install Approach Light System for Runway 5L (1st-5th year)
- Maintain Runway 6-24 (3,244 feet by 60 feet) for general aviation (11th-20th year)
- Maintain Runway 5L-23R (12,000 feet by 150 feet) to 700,000 pounds DDTWL for multiple aircraft (1st-5th year)
- Maintain Runway 5R-23L (12,100 feet by 200 feet) to 800,000 pounds DDTWL for heavy aircraft (6th-10th year)



#### EXPLANATION

- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- ===== Future Roadway
- Runway Protection Zone



**Airport Layout Plan  
Aviation with  
Industrial Park**

**Figure 2.3-3**



1 Flight tracks would remain the same as under current conditions.

2 Facilities in the airfield area are primarily associated with navigational  
3 equipment and airfield maintenance crew activities. About 2,000 square feet  
4 of facilities would be reused for these purposes. It is assumed that existing  
5 navigational aids and equipment would continue to be used. No demolition  
6 is anticipated.

7 **2.3.1.2 Aviation Support.** The aviation support area would encompass  
8 169 acres, or 8 percent of the study area. It would include five separate  
9 areas close to the airfield, adjacent to existing or planned aviation support  
10 areas on land currently owned by the RPA. Aviation support services and  
11 facilities would need to expand within the planning period to support the  
12 projected growth in operations. About 57 percent of aviation support areas,  
13 all on the north side of the airfield, would be absorbed in the 20-year  
14 planning horizon.

15 Development within the study area would be the same as for the Proposed  
16 Action. However, under this alternative, only an additional 73 acres within  
17 the study area and 296 acres on existing RPA property south of the airfield  
18 would be developed beyond the 20-year planning period. Demolition totaling  
19 about 117,000 square feet would occur in the planning period with an  
20 additional 14,100 square feet of demolition beyond that time. New  
21 construction would be slightly less than under the Proposed Action.  
22 Reusable facilities include the same aviation, offices, and storage facilities  
23 as in the Proposed Action. The munitions igloos on the south side of the  
24 airfield would be available for aviation equipment storage.

25 It is likely that some aviation support development would occur on the south  
26 side of the airfield as prime flightline locations are absorbed. This  
27 development would probably be at mid-field on existing RPA property.

28 **2.3.1.3 Military.** Military use would be the same as described for the  
29 Proposed Action (Section 2.2.3).

30 **2.3.1.4 Industrial - General.** About 269 acres, or 13 percent of the study  
31 area are designated for general industrial use with mixed industrial,  
32 manufacturing and office support development. About 62 percent of this  
33 area would be absorbed in the 20-year planning horizon. General industrial  
34 development would be the same as described for the Proposed Action,  
35 except that half of the demand would be absorbed in the second phase and  
36 half in the third phase. The existing Base Supply warehouse and vehicle  
37 workshops would be renovated for reuse. Land in the vicinity of the Base  
38 Supply Warehouse and to the northeast of the dormitories would be  
39 absorbed first. Due to the small supply of reusable facilities, about 868,000  
40 square feet of new facilities would be constructed in the second phase, and  
41 1,014,000 square feet in the third phase.

42 A total of 490,000 square feet of demolition would occur in this area  
43 (excluding the buildings identified for reuse above). About 16,000 square  
44 feet would be demolished in the second phase, as the areas around them  
45 are absorbed for new development. The remaining 474,000 square feet  
46 would be demolished in the third phase.

**2.3.1.5 Industrial - Warehousing.** About 79 acres, or 4 percent of the study area, is designated for warehousing development. However, about 38 acres, or less than 2 percent of the study area, would be developed for warehousing in the planning period, as described in Section 2.2.4. Warehousing is designated for 1,109 acres in the RPA total planning area under this alternative. However, about half of this would be absorbed beyond the planning period, including 41 acres in the study area, on the south side of the airfield.

**2.3.1.6 Vacant Land.** An area of 43 acres within the study area would remain undeveloped, and is the same as described in Section 2.2.5. About 583 acres of land would be left undeveloped in the RPA planning area, mostly in runway protection zones, noise control areas and buffer zones at the northeast end of the existing airfield. Additional vacant land and buffer zones associated with an expanded airfield would not be required.

**2.3.1.7 Employment and Population.** As shown in Table 2.3-4, there would be a total reuse-related employment of about 7,300 direct jobs in the study area by the year 2014. Employment generated by RPA development and the U.S. Navy outside the study area would be the same as for the Proposed Action.

**Table 2.3-4. On-Site Employment and Population - Aviation with Industrial Park Alternative**

	Realignment	1999	2004	2014
Study Area				
Direct Employment	3,312 <sup>(a)</sup>	3,703	5,518	7,278
Operations	3,312	3,664	5,330	7,152
Construction	0	39	188	126
On-site Population	0	0	0	0

Notes: <sup>(a)</sup> Includes full-time and part-time jobs held by Ohio Army and Ohio Air National Guard and 45 airfield operators.

**2.3.1.8 Transportation.** The primary access routes to the airport would remain the same as discussed in Section 2.2.7. The existing railroad spur line in the study area would serve aviation support and industrial areas. Other roads within the study area that would be improved for local circulation include Second Street, Club Road, and Tank Truck Road. No new roadways on the south side of the existing airfield would be constructed in the planning period.

Based on land use and employment projections, total daily vehicular trips to and from the study area would be approximately 13,570 per day by 2014.

**2.3.1.9 Utilities.** By the year 2014, projected activities associated with the Aviation with Industrial Park alternative would generate the following on-site utility uses:

- Water - 0.103 MGD

- Wastewater - 0.087 MGD
- Solid Waste - 9.5 tons/day
- Electricity - 83.9 MWH/day
- Natural Gas - 8,740 therms/day

### 2.3.2 Aviation with Mixed Use Alternative.

This alternative includes residential, commercial, and community/recreation uses in addition to aviation, aviation support, and industrial land uses. Aviation activity would reflect a more moderate level of growth than included in the Proposed Action and Aviation with Industrial Park alternative, although military operations would remain the same. This alternative reflects the Fringe Village, mixed-use planned development concept contained in the City of Columbus Comprehensive Plan.

The land uses within the study area are shown in Figure 2.3-4 and include 1,156 acres for airfield, 177 acres for aviation support, 308 acres for the Ohio ANG and Army National Guard, 36 acres for general industrial, 84 acres for warehousing, 32 acres for commercial, 21 acres for medium-density residential, 24 acres for institutional uses, 62 acres for public recreation and community service including 40 acres for a landscaped park, and 116 acres for open/undeveloped area. Table 2.3-5 summarizes the land use acreage for the study area. RPA land use outside the study area is assumed to be the same as the Aviation with Industrial Park alternative.

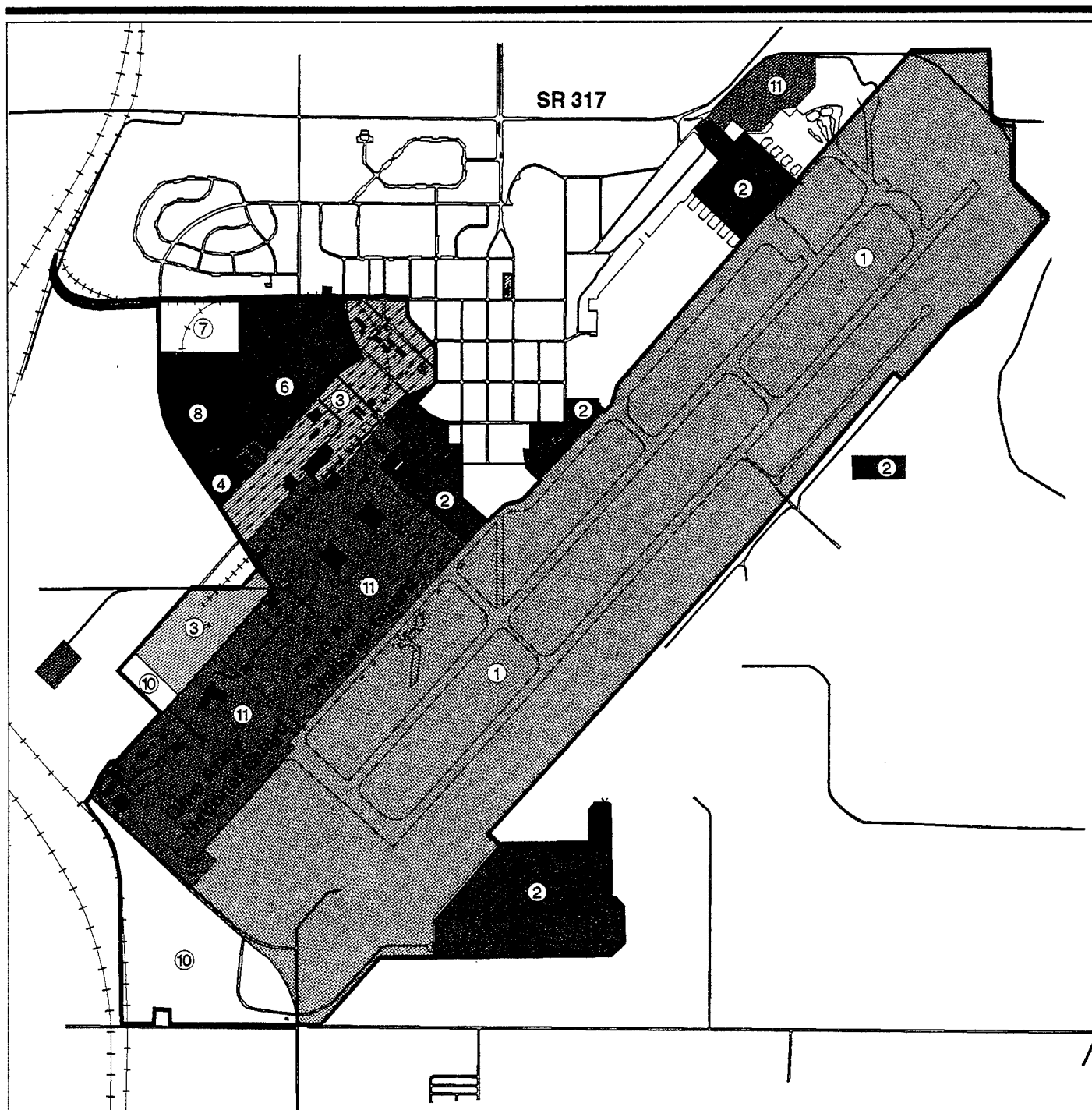
**Table 2.3-5. Land Use Acreages - Aviation with Mixed Use Alternative**

Land Use	Acreages	
	Study Area	RPA Planning Area <sup>(a)</sup>
Airfield	1,156	69
Aviation Support	177	646
Military	308	0
Industrial - General	36	466
Industrial - Warehousing	84	1,030
Commercial	39	0
Institutional	18	0
Residential	21	0
Public Recreation	61	0
Vacant	116	583
<b>Total</b>	<b>2,016</b>	<b>2,794</b>

Notes: <sup>(a)</sup> Outside the study area.

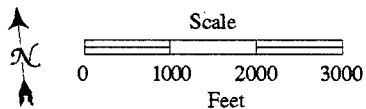
The demand for industrial floor space forecast for this alternative reflects a flat market demand. In addition, this alternative includes office park, residential and community uses focused on reuse of some of the dormitory and community facilities in the study area, as well as institutional and recreational uses. Of all the reuse alternatives, this one would involve the lowest level of air operations and the maximum reuse of existing facilities.

In addition to assumptions listed in Section 2.2, assumptions were developed in the following areas to support the analysis:



#### EXPLANATION

- |                              |                              |
|------------------------------|------------------------------|
| ① Airfield                   | ⑥ Commercial                 |
| ② Aviation Support           | ⑦ Residential                |
| ③ Industrial - General       | ⑧ Public/Recreation          |
| ④ Institutional (Medical)    | ⑨ *Agriculture               |
| ⑤ *Institutional (Education) | ⑩ Vacant Land                |
|                              | ⑪ Military                   |
|                              | — Rickenbacker ANGB Boundary |



\* Not Applicable

#### Aviation With Mixed Use Alternative Study Area

Figure 2.3-4

- Airfield improvements.
- Land use designation.
- Projected demand for specific land use categories and facilities.
- Level of air operations.

The amount of existing facility demolition and retention and new facility construction for each land use in this alternative is provided in Table 2.3-6.

**Table 2.3-6. Facility Development - Aviation with Mixed Use Alternative**

Land Use	Existing Facility Demolition	Existing Facility Retention	New Facility Construction
(Floor Space in Thousands of Square Feet)			
<b>Study Area</b>			
Airfield	0	2	0
Aviation Support	48	149	2
Military	20	680	89
Industrial - General	0	0	71
Industrial - Warehousing	95	157	67
Commercial	244	95	110
Institutional	0	102	0
Residential	0	0	208
Public Recreation	1	56	0
Vacant	0	<1	0
<b>Total</b>	<b>408</b>	<b>1,241</b>	<b>547</b>

Disturbance within the remainder of the RPA planning area is shown in Table 2.3-7. The acreages within each land use in the study area assumed to be disturbed by construction of facilities, infrastructure improvements, or other operations activities under this alternative are provided for three phases of development: 1994-1999, 2000-2004, and 2005-2014. RPA industrial development outside the study area is assumed to be similar to the Aviation with Industrial Park alternative.

**2.3.2.1 Airfield.** The airfield land use category includes 1,156 acres, or 57 percent of the study area. The airfield would be used for a combination of air cargo, general aviation, and military uses. The airfield area is centered on the existing runways and taxiways, including the lateral runway clearance areas and the RPZs. The area coincides closely with the land currently leased to the RPA. The ALP would be the same as shown in Figure 2.3-3.

The airfield would continue to be used by wide-body and narrow-body all-cargo aircraft, military aircraft (both rotary wing and large tankers), and general aviation aircraft of both piston and turbine types. Projected air operations for the Aviation with Mixed Use alternative are based on low-end operations levels presented in the Rickenbacker International Airport Master Plan and are provided in Table 2.3-8 for the years 1999, 2004, and 2014.

**Table 2.3-7. Acres Disturbed by the Aviation with Mixed Use  
Alternative**

Land Use	Acres Disturbed			
	1994-1999	2000-2004	2005-2014	Total
<b>Study Area</b>				
Airfield	9.8	10.6	11.6	32.0
Aviation Support	1.4	1.1	2.6	5.1
Military	12.9	3.1	19.1	35.1
Industrial-General	1.1	1.3	2.8	5.2
Industrial-Warehousing	0.7	0.8	5.4	6.9
Commercial	0.6	1.5	6.6	8.0
Institutional	0.4	0.4	0.5	1.8
Residential	4.0	7.9	4.1	16.0
Public Recreation	0.5	0.4	0.8	1.7
Vacant	0.6	0.6	1.2	2.4
<b>Total</b>	<b>32.0</b>	<b>27.7</b>	<b>54.5</b>	<b>114.2</b>
<b>RPA Planning Area<sup>(a)</sup></b>				
Airfield	0.4	0.4	0.7	1.5
Aviation Support <sup>(b)</sup>	19.9	3.2	6.5	29.6
Industrial - General	2.3	100.2	14.0	116.5
Industrial-Warehousing <sup>(c)</sup>	126.8	5.2	31.0	163.0
Vacant	2.9	2.9	5.8	11.6
<b>Total</b>	<b>152.3</b>	<b>111.9</b>	<b>58.0</b>	<b>322.2</b>

Notes: <sup>(a)</sup> Outside study area.

<sup>(b)</sup> Assumes Building 10 would be available for 50 percent joint-leasing.

<sup>(c)</sup> Assumes existing contracts would be constructed initially. Growth beyond then would be slow.

Table 2.3-8. Projected Flight Operations - Aviation with Mixed Use Alternative

Page 1 of 2

Year	Operation	Function	Percent <sup>(a)</sup>	Fleet Mix	Percent D/N <sup>(b)</sup>	Annual Operations	
1999	Air cargo	Cargo	19.1	DC-8	20/80	940	
			7.0	B-727	20/80	345	
			40.2	B-757 <sup>(c)</sup>	20/80	1,975	
			33.7	B-747 <sup>(c)</sup>	20/80	1,655	
	General aviation	Private	47.6	Piston-single	95/5	14,055	
			19.1	Piston-multi	95/5	5,625	
			16.7	Turbo prop	95/5	4,920	
			14.3	Turbo jet	95/5	4,220	
			2.4	Rotary wing	95/5	700	
		Ohio Army NG	Military	90.7	Rotary wing	95/5	7,810
				9.3	C-12	95/5	800
		U.S. Army Reserve	Military	80.7	Rotary wing	95/5	2,256
				19.3	U-21	95/5	540
		Ohio Air NG	Military	73.3	KC-135R	97/3	25,000
				7.0	C-130	97/3	2,400
				14.4	KC-135E	97/3	4,900
				5.3	Other <sup>(d)</sup>	97/3	1,800
	Total				79,941		
2004	Air cargo	Cargo	0.0	DC-8	---	0	
			0.0	B-727	---	0	
			55.0	B-757 <sup>(c)</sup>	20/80	3,225	
			45.0	B-747 <sup>(c)</sup>	20/80	2,640	
	General aviation	Private	38.3	Piston-single	95/5	12,600	
			21.7	Piston-multi	95/5	7,124	
			20.0	Turbo prop	95/5	6,575	
			15.0	Turbo jet	95/5	4,930	
			5.0	Rotary wing	95/5	1,645	
		Ohio Army NG	Military	90.7	Rotary wing	95/5	7,810
				9.3	C-12	95/5	800
		U.S. Army Reserve	Military	80.7	Rotary wing	95/5	2,256
				19.3	U-21	95/5	540
		Ohio Air NG	Military	73.3	KC-135R	97/3	25,000
				7.0	C-130	97/3	2,400
				14.4	KC-135E	97/3	4,900
				5.3	Other <sup>(d)</sup>	97/3	1,800
	Total				84,245		

Table 2.3-8. Projected Flight Operations - Aviation with Mixed Use Alternative

Page 2 of 2

Year	Operation	Function	Percent <sup>(a)</sup>	Fleet Mix	Percent D/N <sup>(b)</sup>	Annual Operations		
2014	Air cargo	Cargo	0.0	DC-8	---	0		
			0.0	B-727	---	0		
			55.0	B-757 <sup>(c)</sup>	20/80	4,550		
			45.0	B-747 <sup>(c)</sup>	20/80	3,725		
	General aviation	Private	33.0	Piston-single	95/5	12,720		
			21.6	Piston-multi	95/5	8,335		
			23.9	Turbo prop	95/5	9,210		
			14.8	Turbo jet	95/5	5,700		
			6.8	Rotary wing	95/5	2,635		
			Ohio Army NG	Military	90.7	Rotary wing	95/5	7,810
					9.3	C-12	95/5	800
	U.S. Army Reserve	Military	80.7	Rotary wing	95/5	2,256		
			19.3	U-21	95/5	540		
	Ohio Air NG	Military	73.3	KC-135R	97/3	25,000		
			7.0	C-130	97/3	2,400		
			14.4	KC-135E	97/3	4,900		
			5.3	Other <sup>(d)</sup>	97/3	1,800		
	Total						92,381	

- Notes:
- <sup>(a)</sup> Percent may not be exact due to rounding.
  - <sup>(b)</sup> Night operations occur between 10:00 p.m. and 7:00 a.m.
  - <sup>(c)</sup> Stage 3 aircraft.
  - <sup>(d)</sup> Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.
- D/N = Day/Night
- NG = National Guard



The primary users would be military aircraft, accounting for about 45,500 operations annually. About 3 to 5 percent of the military operations would be after 10:00 p.m. General aviation operations would grow at a rate of 1.7 percent annually, with a shift in fleet mix from piston to turbine and rotary aircraft toward the end of the planning period. Air cargo operations would grow at a rate of 3.5 percent annually under this alternative, and would be primarily at night. Starting in the year 2000, DC-8 and B-727 aircraft would no longer operate at the airport because they do not comply with Stage 3 noise standards. These projections result in an estimated 24,960 tons of cargo handled at the airport in 1994; 45,218 tons in 1999; 53,958 tons in 2004; and 76,130 tons in 2014.

Under this alternative, the airfield would continue to operate in a manner similar to current operations. Runway 5R-23L, with the greatest load-bearing capacity, would continue to be the primary runway for military operations and half of the air cargo operations. The pavement strength for the runway is anticipated to remain adequate for about 10 years, but would require timely maintenance late in the second phase of the planning period. Runway 5L-23R would be used by air cargo and general aviation operations.

Sections of Runway 5L-23R are in poor condition at present, and the runway will require rehabilitation. This runway would be maintained to its maximum bearing capacity and length into the future to provide the greatest flexibility for operating large military and cargo aircraft. Other airfield improvements include:

- Maintain Runway 5R-23L at 12,102 feet to 800,000 pounds DDTWL (6-10th year)
- Rehabilitate Runway 5L-23R to 12,001 feet to 700,000 pounds DDTWL (1st-5th year)
- Add taxiway exit from Runway 5R-23L to 5L-23R (800 feet by 75 feet) (1st-5th year)
- Add taxiway exit from Runway 5L-23R to apron (700 feet by 75 feet) (1st-5th year)
- Install Category I ILS for Runway 5L (1st-5th year)
- Install Category II ILS (upgrade) for Runway 5R (1st-5th year)
- Install Approach Light System for Runway 5L (1st-5th year)
- Maintain Runway 6-24 (3,244 feet by 60 feet) for general aviation (11-20th year)

Flight tracks would remain the same as under current conditions.

Facilities in the airfield area are primarily associated with navigational equipment and airfield maintenance crew activities. About 2,000 square feet of facilities would be reused for these purposes. It is assumed that existing navigational aids and equipment would continue to be used. Very little demolition is anticipated. Ground disturbance resulting from airfield

improvements is included in Table 2.3-7 and is primarily due to construction of new taxiway exits in the first planning phase.

**2.3.2.2 Aviation Support.** The aviation support area would encompass 177 acres, or 9 percent of the study area, in four separate areas along the airfield, adjacent to existing or planned aviation support areas currently owned by the RPA. Only aviation support areas on the north side of the airfield would be absorbed in the 20-year planning horizon. A noncontiguous parcel at the site of the old sewage treatment plant would ultimately be used for aviation support development beyond the planning horizon.

About 149,000 square feet of current facilities in these areas would be reused, including the airfield tower and base operations building, airfield maintenance equipment storage and equipment, and some office-type buildings. About 87,000 square feet of hangar space would be available. Since supply of air cargo facilities at the airport outweighs demand for status quo growth, this space would be used as a maintenance facility. A total of 48,000 square feet would be demolished during the 20-year planning period.

There is an ample supply of reusable aviation facilities and hangar space in the study area and on existing RPA property. The FBO and general aviation functions would move to a more central location along the airfield so that extensive taxiing distances for small aircraft could be reduced. A new hangar would be built on land currently owned by the RPA, and some new tie-downs would be installed on ramp areas along Taxiway A in the aviation support area. Most aviation support functions would be developed on land already owned by the RPA. The area around the old alert facility at the north end of the runway would be used for expanding air cargo facilities, but it would not be absorbed in the first 20 years. The munitions igloos on the south side of the airfield could be used in the interim for airfield equipment storage, small arms for local law enforcement units, or local farm produce. In the third phase, a new tower may be constructed in the study area or in the RPA planning area, but the exact location has not been determined.

The airside boundary of the aviation support area is defined by an FAA prescribed clearance of 160 feet from the centerline of Taxiway A (see Section 2.2.3). Taxiway A is adjacent to the apron and assumed to be 75 feet wide. This results in a 197.5-foot setback from the airside edge of Taxiway A within which aircraft would not be parked or facilities constructed.

**2.3.2.3 Military.** Military use would be the same as described for the Proposed Action (Section 2.2.3).

**2.3.2.4 Industrial - General.** An area of 36 acres, or less than 2 percent of the study area, is designated for general industrial development. This includes manufacturing and service industries. An estimated 71,000 square feet of manufacturing floor space would be constructed in the study area within the planning period, absorbing about 4.6 acres, or 13 percent of available general industrial land. There are no reusable facilities for industrial use in this area. New construction would begin in the first phase and be fairly evenly distributed through the planning period. No demolition would occur in this area during the planning period.

1                   **2.3.2.5 Industrial - Warehousing.** An area of 84 acres, or 4 percent of the  
2 study area, is designated for warehouse development. In this alternative,  
3 the warehousing area would be located between the Ohio ANG cantonment  
4 and institutional and new office park areas. Second Street would be  
5 widened and a landscaped strip on the north side developed to buffer  
6 community functions from heavier industrial and airfield activities. The  
7 warehouse area would extend from Tank Truck Road to the existing  
8 boundary between RPA and base property. Adjacent land on RPA property  
9 would be used for warehousing and aviation corporate parcels.

10 Demand for warehouse space would assume a low growth level following  
11 recent rapid development. About 157,000 square feet of existing  
12 warehouse-type facilities could be reused or renovated, resulting in no need  
13 for new warehouse construction until the third phase, when about 67,000  
14 square feet would be added. Reusable facilities include the Base Supply  
15 warehouse.

16 Demolition of 95,000 square feet of existing facilities is projected. About  
17 41,400 square feet would be demolished in the first phase, including many  
18 of the old warehouses on the north side of the base, which are in very poor  
19 condition, and the gas station. The remainder of the demolition would occur  
20 in the third phase of the planning period or beyond as new construction in  
21 areas closest to RPA property being developed and sold for warehousing  
22 and air industrial use progresses.

23                   **2.3.2.6 Commercial.** About 39 acres, or less than 2 percent of the study  
24 area, are designated for commercial development. This area includes 11 of  
25 the existing dormitories, the Ohio ANG headquarters offices, and two  
26 facilities with offices and loading docks. This area would be developed  
27 primarily with administrative offices such as banks, corporate suites, real  
28 estate brokers and professional and health services. There could also be  
29 some neighborhood commercial retail businesses.

30 It is anticipated that absorption of this area would be slow, mostly occurring  
31 beyond the 20-year planning period. About 18,500 square feet would be  
32 absorbed, initially using mostly existing facilities. A further 18,500-square-  
33 foot demand in the second phase would generate a need for about 17,000  
34 square feet of new construction. The third phase would entail new  
35 construction of about 93,000 square feet. About 35 percent of this area  
36 would be absorbed in the 20-year planning period.

37 Three dormitory buildings previously renovated for billeting would continue  
38 to function as billeting and temporary accommodations for area industries  
39 and to support military functions. About 60 percent of the billeting would be  
40 absorbed in the first phase, and occupancy would increase throughout the  
41 planning period up to 100 percent (125 occupants).

42                   **2.3.2.7 Institutional.** About 18 acres, or just under 1 percent of the study  
43 area, are designated for institutional use, coinciding with the eight  
44 southernmost dormitories and associated heating facility. This area would  
45 maximize reuse of existing facilities. Four of the dormitories would be  
46 renovated as a retirement facility and home for veterans with a variety of  
47 living spaces from small apartments to assisted care. The retirement facility  
48 would be largely absorbed in the first 10 years, providing for up to 156

patrons. No new facilities would be constructed and no demolition would occur.

**2.3.2.8 Residential.** About 21 acres, or 1 percent of the study area, are designated for residential development. The residential area would be located on the northwest side of the fuel storage facility, which would be removed. This area would provide medium-density affordable housing, with recreational, retail, and other services in the immediate vicinity. The area is currently undeveloped and is across the unused railspur from existing multi-family housing. Tank Truck Road would connect the two housing areas with an at-grade crossing. A little over 50,000 square feet (43 dwelling units) would be constructed in the first planning phase (about 25 percent absorption). An additional 50 percent absorption would occur in the second phase, and 25 percent in the third phase. This alternative assumes that existing housing areas beyond the base boundary would continue to be in demand and occupied.

**2.3.2.9 Public/Recreation.** Approximately 61 acres, or 3 percent of the study area, are designated for public recreation and use. This alternative would maximize reuse of existing community and public facilities, including the Officers Club, swimming pool, gymnasium, outdoor track and BX.

Projected demand is determined by available facilities. About 56,000 square feet of facility could be reused as is or with renovation. About 80 percent of the facilities would be reused in the first phase. The Officers Club would be partially used and renovated to provide dining for the billeting facilities, and the BX would be renovated to serve as a day care and seniors' center with up to 100 daily users. The dining and gymnasium activities would generate about 470 daily users. There would be no facility demolition or new construction in this area.

A 40-acre area west of the public recreation areas and south of the new medium-density housing would become a landscaped park. The 40 acres would be developed in the third planning phase when the existing fuel storage facilities would be demolished and six aboveground fuel storage tanks would be removed. The area could include a lake, open areas, ball fields, bicycle and jogging pathways, with landscape features and sitting areas near the recreation facilities (gymnasium, dining, and social centers). The park would be linked to residential, community, institutional, and office areas providing both recreational opportunities and pedestrian access.

**2.3.2.10 Vacant Land.** About 116 acres, or 6 percent of the study area, are designated to remain undeveloped open space. Most of this land is on the south side of Tank Truck Road at the south end of the airfield. This area would provide additional buffer space to prevent encroachment on the airfield, preserving flexibility for future runway extensions to the south. Another small open area adjacent to the industrial land use area is also designated for open space. Existing navigational aids and small structures on vacant land would be reused or left in place. Vacant land or RPA property would be the same as under the Aviation with Industrial Park Alternative.

**2.3.2.11 Employment and Population.** As shown in Table 2.3-9, the Aviation with Mixed Use Alternative would include a total reuse-related employment in the study area of about 4,600 direct jobs by the year 2014. Employment generated by RPA development outside the study area would be 7,200 by 2014, and U.S. Navy employment would be the same as for the Proposed Action.

**Table 2.3-9. On-Site Employment and Population - Aviation with Mixed Use Alternative**

	Realignment	1999	2004	2014
Study Area				
Direct Employment	3,312 <sup>(a)</sup>	3,778	4,057	4,573
Operations	3,312	3,752	4,018	4,545
Construction	0	26	39	28
On-site Population	N/A	194	403	493

Notes: <sup>(a)</sup> Includes full-time and part-time jobs held by Ohio Army and Ohio Air National Guard and 45 airfield operators.

Employment in the study area in the first phase is primarily related to community, institutional, and aviation activity. In the third phase, employment would be generated primarily by office park and commercial development. Due to the new residential use and elderly care facilities, residential population is projected for the study area and is shown in Table 2.3-9.

**2.3.2.12 Transportation.** Under this alternative, SR 317 would not be rerouted through the base. Within the study area, Second Street would be widened to become a primary roadway with a landscaped zone on the north side. It would extend eastward to link with Curtis LeMay Avenue. Tank Truck Road would be used as a primary circulation route on the west side and continue north into the existing off-base housing area. It would narrow to a secondary two-lane road north of Second Street. Other secondary roads would utilize existing roadways. About 0.5 mile of new roadway would be constructed in the Ohio ANG cantonment area with a road link to Buildings 863 and 864.

Based on land use, employment, and population projections, total daily vehicular trips to and from the disposal property would be approximately 9,828 trips per day by 2014.

**2.3.2.13 Utilities.** By the year 2014, projected activities associated with this alternative would generate the following on-site utility demand:

- Water - 0.15 MGD
- Wastewater - 0.12 MGD
- Solid Waste - 6.8 tons/day

- Electricity - 37.6 MWH/day
- Natural Gas - 4,338 therms/day

### 2.3.3 No-Action Alternative.

Under this alternative, no land at Rickenbacker ANGB would be disposed. The land currently leased by the RPA would continue to be leased for aviation use. The RPA holds a 70-year lease for about 1,300 acres of airfield due to expire in 2061 and a 50-year lease for 29 acres due to expire in 2041. The Ohio ANG and Ohio Army National Guard would remain as under the other alternatives. The remainder of the property would be maintained in caretaker status.

The land uses within the study area are shown in Figure 2.3-5 and would include 1,265 acres of airfield, 41 acres for aviation support, 308 acres for the Ohio ANG and Ohio Army National Guard, and 402 acres in caretaker status. Table 2.3-10 summarizes the land use acreages for the study area.

**Table 2.3-10. Land Use Acreages - No-Action Alternative**

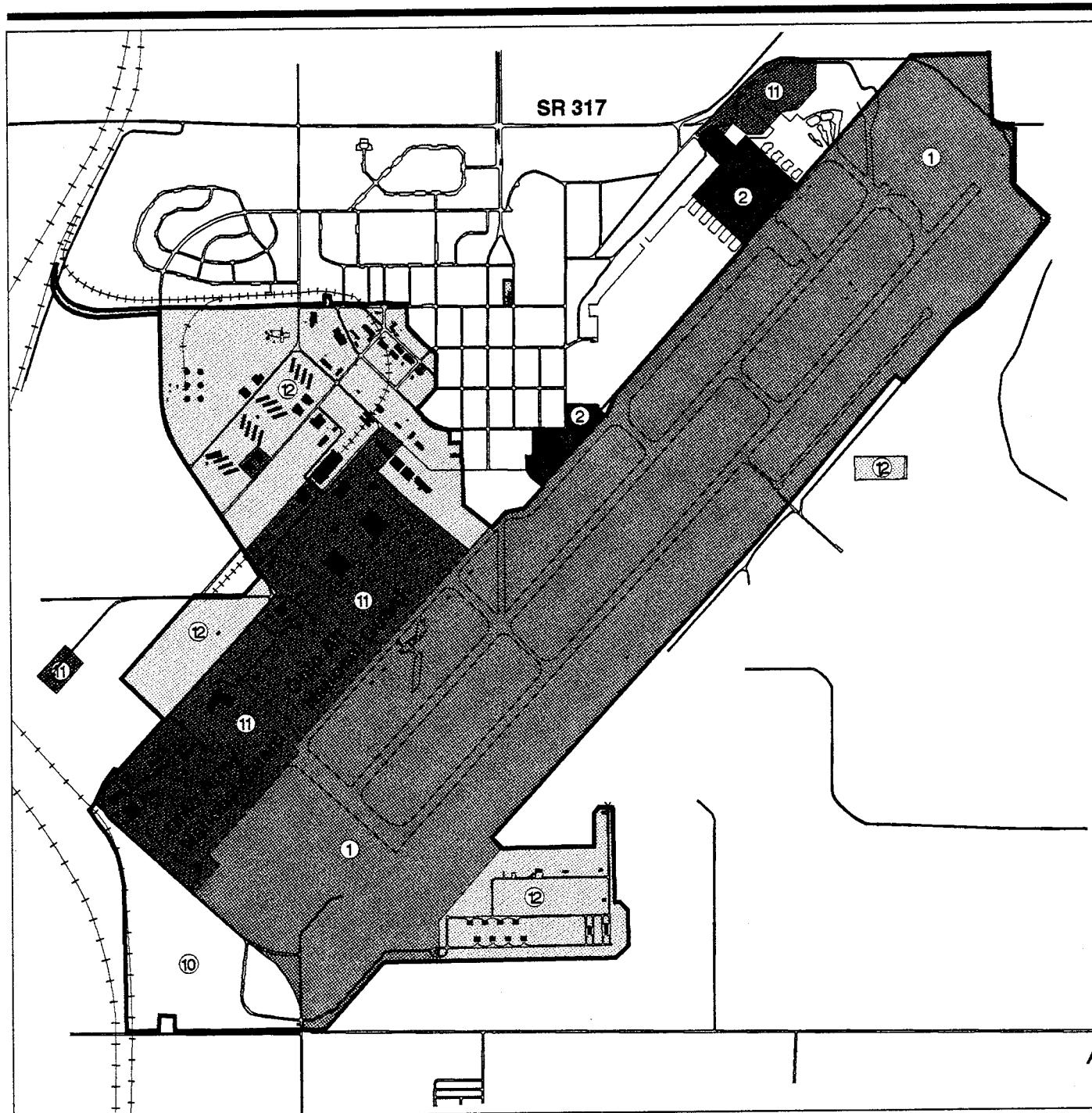
Land Use	Acreage	
	Study Area	RPA Planning Area <sup>(a)</sup>
Airfield	1,163	69
Aviation Support	41	646
Military	308	0
Industrial - General	0	466
Industrial - Warehousing	0	1,030
Caretaker Status	402	0
Vacant	102	583
<b>Total</b>	<b>2,016</b>	<b>2,794</b>

Notes: <sup>(a)</sup> Outside the study area.

There would be no new construction, demolition, or reuse of facilities in the area under caretaker status. Some additions and alterations of facilities in the military cantonment areas would be expected, as described for the Proposed Action. It is assumed that the RPA would continue to use facilities within the leased areas, but that no new development would occur on leased land. A new tower facility would be located on RPA property.

Infrastructure improvements, including runway maintenance, would generate a small amount of ground disturbance over the planning period. The acreages within each land use area assumed to be disturbed by these activities are provided in Table 2.3-11 for three phases of development: 1994-1999, 2000-2004, and 2005-2014. Ground disturbance on RPA property would be similar to the Aviation with Mixed Use alternative.

The airfield would continue to be used by wide-body and narrow-body all-cargo aircraft, military aircraft, and general aviation aircraft of both piston and turbine types. Air operations projected under the No-Action Alternative would be the same as or less than projections for the Aviation with Mixed Use Alternative (see Table 2.3-8).

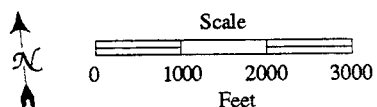


# EXPLANATION

- ① Airfield
- ② Aviation Support
- ③ \*Industrial - General
- ③ \*Industrial - Warehousing
- ④ \*Institutional (Medical)
- ⑤ \*Institutional (Education)

- ⑥ \*Commercial
- ⑦ \*Residential
- ⑧ \*Public/Recreation
- ⑨ \*Agriculture
- ⑩ Vacant Land
- ⑪ Military
- ⑫ Caretaker Status
- Rickenbacker ANGB Boundary

\* Not Applicable



## No-Action Alternative Study Area

Figure 2.3-5

Table 2.3-11. Acres Disturbed by the No-Action Alternative

Land Use	Acres Disturbed			Total
	1994-1999	2000-2004	2005-2014	
<b>Study Area</b>				
Airfield	8.8	9.5	11.2	29.5
Aviation Support	0.4	0.2	0.4	1.0
Military	12.9	3.1	19.1	35.1
Caretaker Status	0.0	0.0	0.0	0.0
Vacant	0.8	0.8	1.5	3.1
<b>Total</b>	<b>22.9</b>	<b>13.6</b>	<b>32.2</b>	<b>68.7</b>
<b>RPA Planning Area<sup>(a)</sup></b>				
Airfield	0.4	0.4	0.7	1.5
Aviation Support	20.2	3.3	6.6	30.1
Industrial - General	2.3	100.2	14.0	116.5
Industrial - Warehousing	126.6	5.2	31.0	162.8
Vacant	2.9	2.9	5.8	11.6
<b>Total</b>	<b>152.4</b>	<b>112.0</b>	<b>58.1</b>	<b>322.5</b>

Notes: <sup>(a)</sup> Outside the study area.

**2.3.3.1 Airfield.** The airfield area would be about 1,163 acres and is approximately equivalent to the area currently leased by the RPA, excluding vacant land at the southwest end of the airfield (see Section 2.3.3.5). The RPA would continue to operate the airfield for general aviation, air cargo, and military aircraft until the lease expires in 2061.

**2.3.3.2 Aviation Support.** About 41 acres adjacent to the airfield are designated as aviation support that the RPA would continue to lease to support airfield activities. This includes the land around the base operations and tower facility, fire station, and maintenance equipment hangar that are included in the 70-year lease. Within this area, the Ohio ANG would keep the fire station (Buildings 502 and 506) permanently and the base operations and tower (Building 500) temporarily. The Ohio ANG would also continue to use two fuel storage tanks and support equipment, and hangars 594, 595, and 596 on a temporary basis. About 29 acres of the aviation support area includes the old alert facility and ramp area. This area is currently leased to the RPA for 50 years and the lease terminates in 2041. Due to available air cargo facilities and developable land within existing RPA areas, no new facility construction would occur in the study area. However, due to the unavailability of base land for development, slightly more use of RPA property for aviation support would result, particularly in the first phase of the planning period.

**2.3.3.3 Military.** Military use would be the same as described for the Proposed Action (Section 2.2.3).

**2.3.3.4 Caretaker Status.** Under this alternative, about 402 acres would be maintained in caretaker status. The facilities and infrastructure would not be sold, leased, demolished, or reused, but maintained sufficiently to prevent deterioration that could affect public health or safety.



**2.3.3.5 Vacant Land.** Under the No-Action Alternative, about 102 acres at the southwest end of the airfield would remain vacant. This area is within the area leased by the RPA for use as airfield. No structures or navigational aids in this area would be removed or demolished and no new structures would be constructed. Vacant land on RPA property would be the same as under the Aviation with Industrial Park Alternative.

**2.3.3.6 Employment and Population.** For the No-Action Alternative, a small number of employees (about five persons) would be required to maintain the property in caretaker condition. This would include minimal building and ground maintenance. Initially, additional employees would be retained by the Air Force to oversee cleanup of hazardous sites under the IRP program (about 10 persons). By the year 2014, the No-Action Alternative would include a total employment of about 3,300 in the study area, and 7,500 in RPA areas outside the study area. U.S. Navy employment would be the same as in the Proposed Action. Employment for the planning period is summarized in Table 2.3-12. There would be no residential population within the study area.

**Table 2.3-12. On-Site Employment and Population - No-Action Alternative**

	Realignment	1999	2004	2014
Study Area				
Direct Employment	3,312 <sup>(a)</sup>	3,315	3,308 <sup>(b)</sup>	3,314
On-site Population	0	0	0	0

Notes: <sup>(a)</sup> Includes full-time and part-time jobs associated with Ohio Army and Ohio Air National Guard units, caretaker functions, and 45 airfield operations.

<sup>(b)</sup> Reflects loss of 10 jobs associated with IRP cleanup activities.

Employment generated by RPA development would be slightly higher than for the Aviation with Mixed Use Alternative because the unavailability of base land for development would require more activity to be absorbed on existing RPA land.

**2.3.3.7 Transportation.** Under the No-Action Alternative, SR 317 would not be rerouted through the study area. Other ground transportation improvements within the RPA area would remain the same. No roadway improvements would be made within the study area. Based on land use and employment projections, total daily vehicular trips to and from the base would be approximately 2,018 per day by 2014.

**2.3.3.8 Utilities.** By 2014, projected activity associated with the No-Action Alternative would generate the following total utilities demand:

- Water - 0.027 MGD
- Wastewater - 0.023 MGD
- Solid Waste - 2.1 tons/day

- Electricity - 17.6 MWH/day
- Natural Gas - 1,977 therms/day

#### **2.3.4 Other Land Use Concepts.**

In response to solicitation from the DOD, in accordance with the Federal Property and Administrative Services Act of 1949, requests were received from some state and federal agencies for acquisition of certain land or facilities that may become available after realignment. In addition, requests from independent organizations and individuals have been received. These proposals and requests, which are not part of any integrated reuse plan, could be initiated on an individual basis or in combination with anyone of the reuse alternatives, including the Proposed Action.

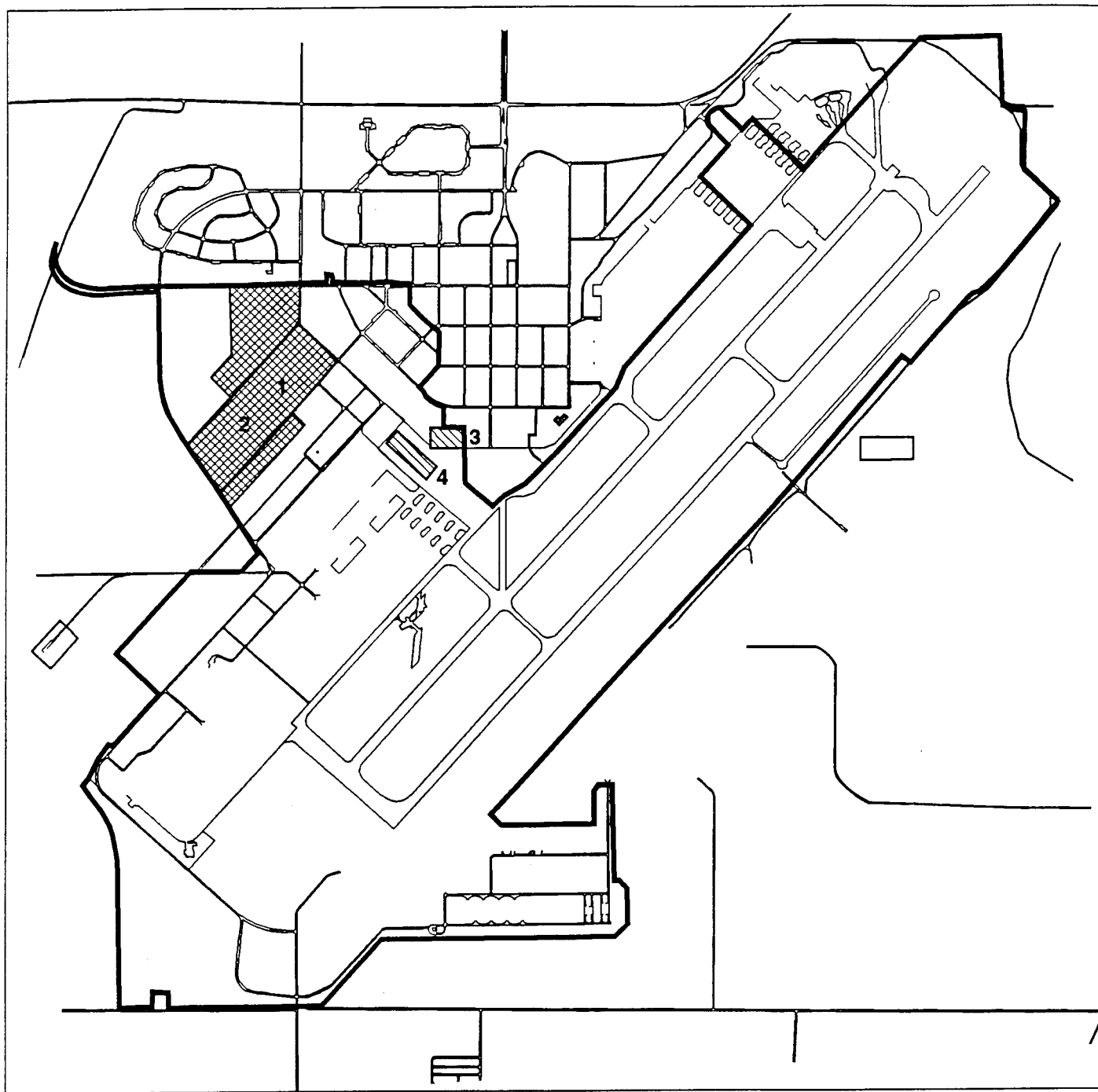
Nearly all requests are for one or more facilities north of Second Street and west of Club Road. This area includes the dormitories, clinic, dining hall, Officers Club, gymnasium, BX, and outdoor track. Figure 2.3-6 shows the location of the land use concept and the proposals and requests are summarized in Table 2.3-13.

**2.3.4.1 U.S. Army Reserve.** The 83rd U.S. Army Reserve Command requests transfer of Buildings 851, 852, 856, 859, and 870, including parking lot areas between the buildings, vacant land between Buildings 856 and 863, and two acres of vacant land between Buildings 810 and 801 on the north side of Tank Truck Road. The facilities would be used as a training facility with offices and classrooms to support the 914th Combat Support Hospital. There would be about 14 full-time employees during the week, and up to 606 reservists on site for one weekend each month.


**2.3.4.2 Housing for the Homeless.** As part of the McKinney Act of 1987 and the Pryor Amendment of 1993, HUD, in conjunction with the HHS and GSA, identifies surplus government buildings and properties for suitability as housing for the homeless. HUD evaluated the existing dormitories and did not find them suitable for housing due to the proximity of the fuel storage facility.


Homeless Assistance providers have shown interest in using all the dormitories, Officers Club, gymnasium, BX, the track, the swimming pool, and two ball fields for homeless housing. The proponent will appeal HUD's evaluation on the basis that this has been suitable housing for the military and that off-base housing development is also located in proximity to the fuel storage facility. A formal proposal has not been received by the Air Force, but the proponent indicated that about 500 people would be housed at Rickenbacker with support staff and transportation to Columbus provided.

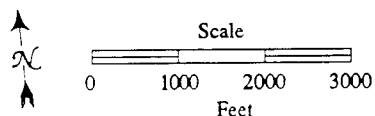
**2.3.4.3 Ohio Department of Rehabilitation and Corrections.** The Ohio Department of Rehabilitation and Corrections has expressed an interest in using all 16 dormitory facilities and associated heat plant (Building 871), and Buildings 800, 810, 855, 856, 863, 864, and 874 for use as a Correctional Administrative Complex. The complex would include a Corrections Officer Training Academy, Employment Assessment Center, the Department of Rehabilitation Central Office, and the Ohio Penal Industries Headquarters



# EXPLANATION

-  Proposed Federal and State Transfers  
1. Several proposals and requests for all or portions of area, including:  
U.S. Army Reserve  
U.S. Dept. of Labor Jobs Corp. Program  
Ohio Dept. of Rehabilitation & Correction  
Columbus State Community College  
Army Audit Agency

-  Independent Land Use Requests  
2. Several proposals and requests for all or portions of area including:  
Housing for Homeless  
Veterans' Organizations  
Independent hotel management entities  
3. Flight Training School, pilots' lounge/restaurant/store, (Building 538)  
4. Flight Training School Maintenance area in Building 594, 595 or 596



## Other Land Use Concepts

Figure 2.3-6

**Table 2.3-13. Summary of Federal and Independent Proposals and Requests**  
**Page 1 of 3**

Building Number	Current Use	Requester	Proposed Use	Status
860, 861, 862	VOQ, VAQ	American Veterans	Hotel/Billeting	Proposal
		Ohio Department of Rehabilitation	Dorms	Proposal
		Aviation Technologies, Inc.	Hotel/Billeting	Request
		Beck Summit Hotel Management Group	Hotel/Billeting	Request
		Columbus State Community College	Dorms	Request
		U.S. Department of Labor Job Corps Program	Dorms	Request
		Sachs Management Corporation	Hotel/Billeting	Request
		Phoenix Alliance	Homeless housing	Request
		Vietnam Veterans of America (Chapter 16)	Hotel/Billeting	Request
		American Veterans	Post home	Proposal
		Ohio Department of Rehabilitation and Corrections	Dining/recreation	Proposal
		Phoenix Alliance	Homeless dining/recreation	Request
		Henry Snodgrass	Club	Request
		Columbus State Community College	Dining/recreation	Request
810	Gymnasium	U.S. Department of Labor Jobs Corps Program	Dining/recreation	Request
		Valley Tavern, Kirkersville, Ohio	Club	Request
		Vietnam Veterans of America (Chapter 16)	Club	Request
		American Veterans	Gym	Proposal
		Ohio Department of Rehabilitation and Corrections	Gym	Proposal
		Phoenix Alliance	Gym	Request
		Columbus State Community College	Gym	Request
		U.S. Department of Labor Jobs Corps Program	Gym	Request
		Vietnam Veterans (Chapter 16)	Gym	Request
		Young Men's Christian Association (YMCA)	Gym	Request
		American Veterans	Day Care/Seniors' Center	Proposal
		Phoenix Alliance	Homeless	Request
812	Base Exchange			

*Rickenbacker ANGB Disposal and Reuse DEIS*

Table 2.3-13. Summary of Federal and Independent Proposals and Requests  
Page 2 of 3

Building Number	Current Use	Requester	Proposed Use	Status
851-854	Dormitories, teaching	Ohio Department of Rehabilitation and Corrections Phoenix Alliance	Offices/Classrooms	Proposal Request
855	Uniforms, distribution	U.S. Army Reserves (851, 852)	Homeless housing	Request
856	Photo lab, distribution	Ohio Department of Rehabilitation and Corrections	Offices/Classrooms	Proposal
857-858	Dormitories, offices	U.S. Army Reserve	Training facility	Request
859	Dormitories, offices	Ohio Department of Rehabilitation and Correction	Offices	Proposal
863	Clinic	Ohio Department of Rehabilitation and Corrections	Office/Classrooms	Proposal
864	Dining	Phoenix Alliance	Homeless housing	Request
865-867	Dormitories, classrooms, offices	Phoenix Alliance	Offices/Classrooms	Request
869	Offices/ Dormitory	U.S. Department of Labor Job Corps Program	Equipment only (for Bldg. 800)	Proposal Request
870	Dormitory/ Offices	Ohio Department of Rehabilitation and Corrections	Dining	Proposal Request
		Phoenix Alliance	Offices/Classrooms	Proposal Request
		American Veterans	Homeless housing	Request
		Ohio Department of Rehabilitation and Corrections	College, offices	Proposal Request
		Phoenix Alliance	Classrooms/offices	Request
		U.S. Department of Labor Job Corps Program	Homeless housing	Request
		Ohio Department of Rehabilitation and Corrections	Classrooms/offices	Proposal
		Phoenix Alliance	Classrooms/offices	Request
		U.S. Army Reserve	Homeless housing	Request
			Offices/Classrooms	Request

Table 2.3-13. Summary of Federal and Independent Proposals and Requests  
Page 3 of 3

Building Number	Current Use	Requester	Proposed Use	Status
871	Heat/cool plant	American Veterans	Heat/cool plant	Proposal
		Phoenix Alliance	Heat/cool plant	Proposal
		Ohio Department of Rehabilitation and Corrections	Heat/cool plant	Proposal
874	Warehousing/offices	Rickenbacker Port Authority	Naval Training Center	Request
538	Life support equipment storage	Aviation Technologies, Inc.	Flight Training School and social areas, lounge, shop	Proposal
594, 595, 596	Aircraft maintenance	Aviation Technologies, Inc.	One hangar for Flight Training School use	Proposal
Ball fields	Recreation	Phoenix Alliance YMCA	Homeless-recreation Recreation	Request Request
Track	Recreation	American Veterans Phoenix Alliance YMCA	Recreation Homeless - recreation Recreation	Proposal Request Request

1 and warehouse, with classrooms and housing for trainee corrections officers,  
2 administrative offices, and warehousing space. The complex should have  
3 about 390 full-time employees. A proposal to house as many as 200  
4 inmates was recently withdrawn.

5 **2.3.4.4 Relocation of Naval Reserve Center.** The RPA requests that the  
6 U.S. Navy relocate the Naval Reserve Center, currently situated on about 25  
7 acres owned by the U.S. Navy at the north end of the airfield, into Building  
8 874 within the current base boundary. The Naval Reserve Center would  
9 occupy about 100,000 square feet of this large warehouse/office facility, and  
10 would be adjacent to the Ohio Air National Guard cantonment area. This  
11 relocation would make available 25 acres of land that could be used for  
12 aviation support.

13 **2.3.4.5 Other Requests/Proposals.** A number of other agencies and  
14 independent parties have made requests or proposals for some or all of the  
15 community facilities and dormitories in the northwest portion of the base.  
16 These are summarized in Table 2.3-13. Reuses would essentially be similar  
17 to present and past activities in these facilities.

18 Several groups have requested the use of the Officers Club with pool and  
19 surrounding grounds (Buildings 800, 801, 802, 803). Building 810 and its  
20 equipment are requested for reuse as a gymnasium. Building 812 has  
21 several proposed reuses including a day care and senior citizens' center.  
22 Building 869 is requested for use as an educational facility for local college  
23 and office space. Buildings 860, 861, 862, and 871 (the associated  
24 heating/cooling building) are requested for reuse as billeting to support  
25 military needs and as a hotel. The equipment and surrounding grounds from  
26 these buildings are also requested. This request would generate about nine  
27 full-time and 35 part-time jobs and between 280 and 330 daily customers,  
28 including 80 overnight residents and an undetermined number of students.

29 An independent proposal requests the use of Building 538 as a Flight  
30 Training School, and one hangar (Building 594, 595, or 596) as an aircraft  
31 maintenance area for the flight school. The flight school would generate  
32 about 5,000 air operations annually, including pattern work at the airfield.  
33 As part of the renovation of Building 538, a 75-person coffee shop, a 75-  
34 person lounge, a plane and pilot store, pilot lounge, and large multi-purpose  
35 meeting room would be included. About 15 full-time jobs would be  
36 associated with Building 538. Currently 35 student are enrolled with a  
37 proposed increase to 85 students.

## 38 2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

39 - Other reuse proposals submitted for Rickenbacker ANGB were addressed as  
40 individual land use concepts and fell within the context of the reuse  
41 alternatives described above. In addition to the community reuse proposal,  
42 the Air Force identified other potential reuse alternatives for Rickenbacker  
43 ANGB. Since Rickenbacker International Airport is currently functioning as  
44 a joint-use airport, it was not considered reasonable for airport functions to  
45 cease after disposal. Non-aviation alternatives have been eliminated from  
46 further consideration.

In addition, land uses that would be incompatible with continued airport operations and existing industrial uses on adjacent properties were also eliminated from further consideration. Alternatives involving major retail commercial development, such as a shopping center, were not given detailed consideration because there are already adequate retail centers to meet the demand of local communities in the area.

## 2.5 INTERIM USES

Interim uses include predisposal short-term uses of the base facilities and property. Predisposal interim uses are conducted under lease agreements with the Air Force. The terms and conditions of the lease would be arranged to ensure that the predisposal interim uses do not prejudice future disposal and reuse plans for the portions of the base that have been declared surplus or excess. The continuation of interim uses beyond disposal would be arranged through agreements with the new property owner(s). Predisposal interim leases at Rickenbacker ANGB include continuation of four existing leases to the RPA for 1,300 acres for the airfield, 29 acres around the old alert facility (Building 1050); Building 505 for use by Ohio Bell; and for three jet fuel storage tanks. If other interim uses become viable for Rickenbacker ANGB, uses substantially similar to those analyzed in this EIS would be authorized without further environmental analysis. In some cases, separate environmental documentation to cover the action may be required.

A baseline representing conditions at the time of realignment is used for the environmental analysis. Retention of Ohio ANG and Army National Guard units at the base and continued operation of the airfield by the RPA are included in the baseline conditions used for the environmental analysis. No other predisposal interim uses are considered in the baseline because the baseline captures the future conditions at the point of realignment and does not presuppose a decision of continued interim uses, other than airport operations at that time.

Certain post-disposal interim use scenarios have been incorporated into the reuse alternatives. Where appropriate, impacts of these operations are reflected in the environmental analysis of pertinent resource areas.

## 2.6 OTHER FUTURE ACTIONS IN THE REGION

Three reasonably foreseeable actions were identified that could be considered as contributing to a potential cumulative impact on the disposal and reuse of portions of Rickenbacker ANGB.

**SR 317 Widening and/or Realignment.** Franklin County is examining the economic feasibility of widening SR 317 to provide a continuous four-lane highway between Interstate 70 and U.S. Highway 23. A study is being conducted to evaluate possible alignments for the widened highway, including the existing alignment, considering environmental and social conditions. Highway construction would involve additional ground disturbance and increased vehicular traffic in the area. Although a formal planning process has not been initiated through the ODOT, it is reasonably foreseeable that this project will occur. Construction could begin in the second planning phase.



1           **Inland Port.** Currently, the Mid-Ohio Regional Planning Commission  
2 (MORPC) has undertaken an Inland Port Infrastructure Improvement Study  
3 to determine future transportation needs to support possible growth of  
4 Columbus as a major inland distribution center. Initial studies will identify  
5 transportation needs to meet future induced demands. Rickenbacker  
6 International Airport is identified as an air cargo niche hub airport. No  
7 specific actions are identified at the present time.

8           **Inter-Modal Facility.** Currently, there are three intermodal (rail to truck)  
9 yards in the Columbus area. These are rapidly reaching capacity. It is also  
10 probable that new intermodal facilities will be needed in the future. The  
11 Norfolk and Western railroad has adequate capacity at existing city facilities  
12 for the next decade, after which a new intermodal yard could be developed  
13 along the west edge of the airport, or at another location, as part of  
14 cumulative infrastructure projects in the region. This development is most  
15 likely to occur in association with long-range airport expansion but is not part  
16 of the Proposed Action or within the RPA planning area, although rail  
17 service to some sites within the planning area may be needed.

## 18   2.7   COMPARISON OF ENVIRONMENTAL IMPACTS

19           A summary comparison of the influencing factors and environmental  
20 impacts, along with their potential mitigation, on each biophysical resource  
21 affected by the Proposed Action and alternatives over the 20-year study  
22 period is presented in Tables 2.7-1 and 2.7-2. Influencing factors are non-  
23 biophysical elements, such as population, employment, land use, aesthetics,  
24 transportation networks, and public utility systems that directly impact the  
25 environment. These activities have been analyzed to determine their effects  
26 on the environment. Impacts to the environment are described briefly in the  
27 summary and discussed in detail in Chapter 4.0. Table 2.7-3 presents  
28 influencing factors and environmental impacts of other transfers and  
29 independent land use concepts.

Table 2.7-1. Summary of Reuse-Related Factors

Factor	Proposed Action						Aviation with Industrial Park Alternative			Aviation with Mixed Use Alternative		
	1999	2004	2014	1999	2004	2014	1999	2004	2014	1999	2004	2014
Ground disturbance (acres by phase)	52	50	235	46	105	145	32	28	55			
Aircraft operations (annual)	128,976	163,776	233,741	128,976	163,776	233,741	79,941	84,245	92,381			
Direct employment	3,737	4,039	7,358	3,703	5,518	7,278	3,778	4,057	4,573			
Secondary employment	899	1,238	5,302	869	3,065	5,219	975	1,330	2,137			
Population increase	47	84	477	44	256	471	56	87	158			
Traffic (total daily trips)	4,264	6,193	13,487	3,969	8,676	13,570	5,312	7,217	9,826			
Increase in water demand (MGD)	0.07	0.008	0.142	0.01	0.07	0.142	0.06	0.11	0.146			
Increase in wastewater production (MGD)	0.06	0.06	0.11	0.01	0.06	0.12	0.05	0.09	0.12			
Increase in solid waste (tons/day)	2.17	2.72	8.49	0.65	4.27	8.45	2.28	3.60	5.08			
Increase in electricity demand (MWH/day)	13.85	19.70	73.55	6.64	36.38	73.12	7.22	13.56	23.34			
Increase in natural gas demand (MMCF/day)	0.12	0.18	0.76	0.07	0.38	0.76	0.09	0.16	0.28			

MGD = million gallons per day.

MWH = megawatt-hours.

MMCF = million cubic feet

Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 1 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Local Community Land Use and Aesthetics	<p>Conditions: Combined military activities within retained cantonment areas, and joint use of airfield. Other portions of the base placed under caretaker status.</p>	<p>Impacts: Civilian redevelopment within the study area and total RPA planning area for industrial and aviation support activities. Projected high growth in civilian air operations; expansion of airfield for new runway. May require revisions to Columbus Comprehensive Plan. Impacts to existing residential uses adjacent to the base. Impacts to property holders due to airfield expansion.</p> <p>Mitigations: Modification of Columbus Comprehensive Plan to include intensive development in vicinity of Rickenbacker International Airport; zoning amendments regarding development near airport; early acquisition of undeveloped land for airport expansion. Continued agricultural use in airfield protection and buffer zones. Use of buffers and landscaping to screen incompatible uses.</p>	<p>Impacts: Same as Proposed Action except no expansion for new runway.</p> <p>Mitigations: Same as Proposed Action except no acquisition of land for expansion required. Use of buffers and landscaping to screen incompatible uses.</p>	<p>Impacts: Combined joint-use airfield activities and mixed use redevelopment within study area may have beneficial impacts on adjacent residential areas and provide recreation resources for surrounding area. Residential and community areas may be in proximity to industrial areas.</p> <p>Mitigations: Same as Aviation with Industrial Use, although zoning amendments should also provide for integrated planning district development. Use of buffers and landscaping to screen incompatible uses.</p>	<p>Impacts: Empty facilities in study area may affect marketability and growth of RPA air/industrial park activities.</p> <p>Mitigations: Amendments to local zoning ordinances to restrict development near airport. Use of buffers and landscaping to screen incompatible uses.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

RPA = Rickenbacker Port Authority

Rickenbacker ANGB Disposal and Reuse DEIS

Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 2 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Surface Transportation	Conditions: 2,020 daily vehicular trips.	<p>◆ Impacts: Reuse would generate 13,487 daily vehicular trips, an increase of 11,467 daily trips by the year 2014. Roadway segments would not provide acceptable level of service (LOS) due to growth within the study area and total RPA planning area.</p> <p>◆ Mitigations: Improvements to State Highway 317 and Groveport Road would be required 10-20 years after base realignment due to growth in planning area.</p>	<p>◆ Impacts: Reuse would generate 13,570 daily vehicular trips, an increase of 11,550 daily trips, by the year 2014. Similar to Proposed Action.</p>	<p>◆ Impacts: Reuse would generate 9,828 daily vehicular trips, an increase of 7,808 daily trips, by the year 2014. Roadway segments would continue to provide acceptable LOS.</p>	<p>◆ Impacts: Reuse would generate 2,035 daily vehicular trips, an increase of 15 daily trips, by the year 2014. Roadway segments would continue to provide acceptable LOS.</p>
Air Transportation	77,146 annual aircraft operations at the airfield from both military and commercial users.	<p>◆ Impacts: Increase of 156,595 annual aircraft operations. No airspace conflicts or air transportation impacts.</p>	<p>◆ Impacts: Same as Proposed Action.</p>	<p>◆ Impacts: Increase of 15,235 annual aircraft operations. No airspace conflicts or air transportation impacts.</p>	<p>◆ Impacts: Same as Aviation with Mixed Use Alternative.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

LOS = level of service

RPA = Rickenbacker Port Authority

Rickenbacker ANGB Disposal and Reuse DEIS

**Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**

**Page 3 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Utilities Use	<p>Conditions:</p> <p>Water: 0.17 MGD Wastewater: 0.30 MGD Solid Waste: 2.7 Tons/Day Electric: 19.07 MWH/Day Gas: 0.06 MMCF/Day</p>	<p>Impacts:</p> <p>Minor increases in ROI utility demand; natural gas increase of 55 percent. Current systems with planned improvements would be able to accommodate these increased demands.</p> <p>Mitigations:</p> <p>Pretreatment of industrial wastewater may be required.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Natural gas use increase 27 percent. Otherwise same as Proposed Action.</p>	<p>Impacts:</p> <p>No changes in base-related utility use.</p>
<b>Hazardous Materials and Hazardous Waste Management</b>					
Hazardous Materials Management	<p>Conditions:</p> <p>Materials used for retained military activities and caretaker activities will be managed in compliance with applicable regulations.</p>	<p>Impacts:</p> <p>Increase in quantities of materials used. Compliance with applicable regulations would preclude unacceptable impacts.</p> <p>Mitigations:</p> <p>Establish cooperative planning body.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>No change in types and quantities used.</p>
Hazardous Waste Management	<p>Conditions:</p> <p>Wastes generated by retained military activities are managed in accordance with applicable regulations.</p>	<p>Impacts:</p> <p>Increase in quantities of wastes generated. Compliance with applicable regulations would preclude unacceptable impacts.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>No change in quantities generated.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

MGD = million gallons per day  
MWH = megawatt hours  
MMCF = million cubic feet per day  
ROI = region of influence

**Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 4 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Hazardous Waste Management (Cont.)		<p>♦ Mitigations: Collection of hazardous household products; educational programs on recycling, waste minimization, waste disposal.</p> <p>♦ Impacts: Possible redevelopment delays and land use restrictions due to remediation.</p>	<p>♦ Mitigations: Same as Proposed Action.</p>	<p>♦ Mitigations: Same as Proposed Action.</p>	
Installation Restoration Program	<p>Conditions: IRP activities will continue in accordance with applicable regulations regardless of base realignment and reuse.</p>	<p>♦ Mitigations: Coordination between OL and planning agencies to address potential problems. Remediation activities coordinated between OL and management teams for reuses involving 14 IRP sites.</p>	<p>♦ Impacts: Same as Proposed Action.</p> <p>♦ Mitigations: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: IRP remediation activities completed or continued as needed.</p>
Storage Tanks	<p>Conditions: Storage tanks used by retained military activities will be managed in accordance with applicable regulations. Unused tanks will be removed or maintained in place in accordance with applicable standards.</p>	<p>♦ Impacts: Storage tanks used by new owner/operator would be subject to all regulations to avoid unacceptable impacts.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Storage tanks would be removed or maintained in place according to required standards.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

IRP = Installation Restoration Program

OL = Operating Location

**Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**

**Page 5 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Storage Tanks (Cont.)		<p>♦ Mitigations: Appropriate precautions to avoid damage to remaining USTs and piping systems during construction.</p>	<p>♦ Mitigations: Same as Proposed Action.</p>	<p>♦ Mitigations: Same as Proposed Action.</p>	
Asbestos	<p>Conditions: Asbestos posing a health risk will be remediated. Remaining asbestos will be managed in accordance with Air Force policy.</p>	<p>♦ Impacts: Removal and disposal of asbestos in facilities to be demolished. Remaining asbestos would be managed in accordance with applicable regulations to minimize potential risk to human health or the environment.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Continued management of asbestos in accordance with Air Force policy.</p>
Pesticide Usage	<p>Conditions: Pesticides used by military activities are managed in compliance with applicable standards.</p>	<p>♦ Impacts: Increased use associated with civilian development. Management in accordance with FIFRA and state guidelines would preclude unacceptable impacts.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: No change in usage or management practices.</p>
Polychlorinated Biphenyls (PCBs)	<p>Conditions: All federally regulated PCBs removed and properly disposed of prior to realignment.</p>	<p>♦ Impacts: No impacts.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>	<p>♦ Impacts: Same as Proposed Action.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

PCBs = polychlorinated biphenyls

USTs = underground storage tanks

FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act

**Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 6 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Radon	Conditions: No facilities that were tested had registered radon levels above 4 pCi/l.	◆ Impacts: No impacts.	◆ Impacts: No impacts.	◆ Impacts: No impacts.	◆ Impacts: No impacts.
Medical/ Biohazardous Waste	Conditions: Existing wastes removed prior to realignment. Minimal waste generated after realignment through military use of clinic.	◆ Impacts:	◆ Impacts: Same as Proposed Action.	◆ Impacts: Proper management under applicable regulations would avoid unacceptable impacts.	◆ Impacts: Same as Proposed Action.
Ordnance	Conditions: No unexploded ordnance disposal sites on base.	◆ Impacts: No impact.	◆ Impacts: No impact.	◆ Impacts: No impact.	◆ Impacts: No impact.
<b>Natural Environment</b> Soils and Geology	Conditions No ground disturbance.	◆ Impacts: Minor erosion effects from 337 acres of ground disturbance on base over the 20-year study period. Potential erosion impacts from 850 acres of ground disturbance in the RPA planning area, which would include development of a new airfield at the end of the 20-year study period.	◆ Impacts: Minor erosion effects from 295 acres of ground disturbance on base and 662 acres in RPA planning area over the 20-year study period.	◆ Impacts: Minor erosion effects from 114 acres of ground disturbance on base and 322 acres in RPA planning area over the 20-year study period.	◆ Impacts: Minor erosion effects from 69 acres of ground disturbance on base and 325 acres in RPA planning area over the 20-year study period.

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

pCi/l = picocuries per liter

RPA = Rickenbacker Port Authority



Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 7 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Soils and Geology (Cont.)		<p>◆ Mitigations:</p> <p>Use standard techniques such as protective cover and diversion dikes to minimize erosion during and after construction.</p>	<p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>
Water Resources	<p>Conditions:</p> <p>Adequate water supply for limited on-base demand.</p>	<p>◆ Impacts:</p> <p>Slight increase in ROI water consumption rates would not adversely affect water supply.</p> <p>Disturbance and development of 337 acres over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Use storm water run-off controls, minimize areas of disturbance and length of exposure, and stagger timing of construction/ demolition activities.</p> <p>Compliance with NPDES and local permit requirements for storm water and wastewater discharge.</p> <p>Landscape disturbed areas not dedicated to facility or support structure.</p>	<p>◆ Impacts:</p> <p>Slight increase in ROI water consumption rates would not adversely affect water supply.</p> <p>Disturbance and development of 295 acres on base and 662 acres in RPA planning area over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Slight increase in ROI water consumption rates would not adversely affect water supply.</p> <p>Disturbance and development of 114 acres on base and 322 acres in RPA planning area over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>No change in water demand; therefore, no draw down on ROI water supply.</p> <p>Disturbance of 69 acres on base and 325 acres in RPA planning area over the 20-year study period could affect surface water drainage patterns and water quality.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

ROI = region of influence

NPDES = National Pollutant Discharge Elimination System

RPA = Rickenbacker Port Authority

Rickenbacker ANGB Disposal and Reuse DEIS

**Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 8 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Air Quality	<p>Conditions:</p> <p>NO<sub>x</sub>: 1.84 tons/day  VOC: 3.09 tons/day  PM<sub>10</sub>: 0.72 tons/day  SO<sub>2</sub>: 0.34 tons/day  CO: 7.01 tons/day</p> <p>Limited air pollutant emissions generated from retained military activities and caretaker activities. Air Force will implement air emission controls in State Implementation Plan (SIP) as appropriate.</p>	<p>◆ Impacts:</p> <p>Reuse related emissions in 2004:</p> <p>NO<sub>x</sub>: 3.81 tons/day  VOC: 3.83 tons/day  PM<sub>10</sub>: 0.66 tons/day  SO<sub>2</sub>: 0.41 tons/day  CO: 11.82 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Control of fugitive dust and combustion emissions from construction activities.</p>	<p>◆ Impacts:</p> <p>Reuse related emissions in 2004:</p> <p>NO<sub>x</sub>: 4.71 tons/day  VOC: 4.74 tons/day  PM<sub>10</sub>: 1.09 tons/day  SO<sub>2</sub>: 0.58 tons/day  CO: 15.37 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Reuse related emissions in 2004:</p> <p>NO<sub>x</sub>: 2.45 tons/day  VOC: 3.42 tons/day  PM<sub>10</sub>: 0.64 tons/day  SO<sub>2</sub>: 0.33 tons/day  CO: 9.00 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>	<p>◆ Impacts:</p> <p>Emissions in 2004:</p> <p>NO<sub>x</sub>: 1.99 tons/day  VOC: 2.96 tons/day  PM<sub>10</sub>: 0.43 tons/day  SO<sub>2</sub>: 0.24 tons/day  CO: 7.21 tons/day</p> <p>Air pollutant emissions during construction and operations would not materially affect the region's progress toward attainment of the ozone standard. Concentrations would not materially increase the frequency or severity of violations of the ozone standard.</p> <p>No adverse impacts for other criteria pollutants.</p> <p>◆ Mitigations:</p> <p>Same as Proposed Action.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

NO<sub>x</sub> = nitrogen oxides  
VOC = volatile organic compounds  
PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter  
SO<sub>2</sub> = sulfur dioxide  
CO = carbon monoxide  
SIP = State Implementation Plan

Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives

Page 9 of 10

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Noise	<p>Conditions: 6,880 acres and 1,839 residents exposed to DNL 65 dB or greater due to aircraft operations.</p>	<p>Impacts: 10,204 acres and 3,347 residents exposed to DNL 65 dB or greater due to aircraft operations in 2014.</p> <p>Mitigations: Re-accomplish FAR Part 150 to identify potential mitigations.</p>	<p>Impacts: 9,908 acres and 3,218 residents exposed to DNL 65 dB or greater due to aircraft operations in 2014.</p> <p>Mitigations: Re-accomplish FAR Part 150 to identify potential mitigations.</p>	<p>Impacts: Slightly increased operations would result in minimal noise impacts during 20-year study period.</p>	<p>Impacts: Same as Aviation with Mixed Use Alternative.</p>
Biological Resources	<p>Conditions: No ground disturbance. No threatened or endangered species on base. Forty-four small wetlands on base.</p>	<p>Impacts: Potential impacts to 111 small wetlands in total planning area, including 44 on base.</p> <p>Mitigations: Determine whether wetlands are jurisdictional. Wetlands mitigation could include avoidance through facility design, replacement, enhancement of wetland habitat, or control of construction-related erosion into nearby wetlands.</p>	<p>Impacts: Potential impacts to 93 small wetlands in total planning area, including 44 on base.</p> <p>Mitigations: Same as Proposed Action.</p>	<p>Impacts: Same as Aviation with Industrial Park Alternative, but impacts may be more limited on base.</p> <p>Mitigations: Same as Proposed Action.</p>	<p>Impacts: No change in base-related activities. Limited potential for impacts to 44 small wetlands on base. Potential increase in habitat due to long-term decrease in human activity.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

DNL = day-night average sound level

dB = decibel

FAR = Federal Aviation Regulation

**Table 2.7-2. Summary of Impacts and Suggested Mitigations for the Proposed Action and Alternatives**  
**Page 10 of 10**

Resource Category	Realignment Baseline	Proposed Action	Aviation with Industrial Park	Aviation with Mixed Use	No-Action Alternative
Cultural Resources	<p>Conditions:</p> <p>No archaeological, native American, architectural, or paleontological resources on base.</p>	<p>Impacts:</p> <p>No archaeological, Native American, architectural, or paleontological resources on base. Potential for cultural resources on off-base areas to be developed by the RPA.</p> <p>Mitigations:</p> <p>No mitigation necessary within base boundary.</p> <p>On off-base areas project proponents would be required to coordinate with Ohio SHPO and comply with the National Historic Preservation Act if federal funding is obtained or a federal permit is required for the project.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>Same as Proposed Action.</p> <p>Mitigations:</p> <p>Same as Proposed Action.</p>	<p>Impacts:</p> <p>No archaeological, Native American, architectural, or paleontological resources on base.</p>

Notes: Impacts are based on the changes from realignment baseline conditions, which are projected to occur as a result of implementing that alternative.

RPA = Rickenbacker Port Authority

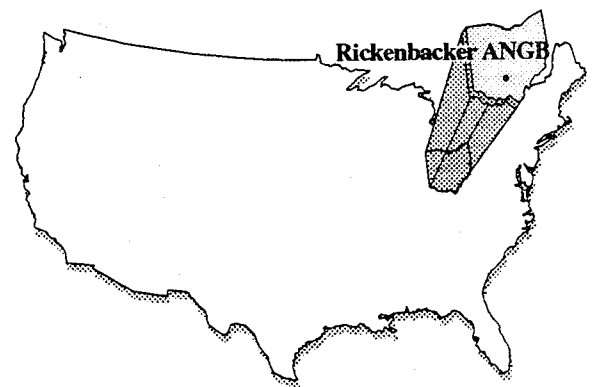
SHPO = State Historic Preservation Officer

Table 2.7-3. Summary of Impacts from Other Land Use Concepts

Resource Category	Formal Proposals	Other Requests
<b>Local Community</b>		
♦ Land Use and Aesthetics	Potential incompatibilities with other planned uses.	Same as formal proposal.
♦ Transportation	No change in air traffic. Minor increases in surface traffic.	Same as formal proposal.
♦ Utilities	Minor increases in utility demand.	Same as formal proposal.
<b>Hazardous Materials and Hazardous Waste Management</b>		
♦ Hazardous Materials	Use of small quantities of household and industrial materials (aviation maintenance).	Use of small quantities of household materials.
♦ Hazardous Waste	Small quantities generated.	Same as formal proposal.
♦ Installation Restoration Program	No impact to remediation activities.	Same as formal proposal.
♦ Storage Tanks	No new storage tanks.	Same as formal proposal.
♦ Asbestos	Renovation of existing buildings may require removal and disposal and/or management in place.	Same as formal proposal.
♦ Pesticides	Small quantities to be utilized for landscaping.	Same as formal proposal.
♦ PCBs	Regulated PCBs will be removed by Ohio ANG.	Same as formal proposal.
♦ Radon	Not applicable.	Same as formal proposal.
♦ Medical/Biohazardous Wastes	Medical clinic subject to conformance with state regulations.	Not applicable.
♦ Ordnance	Not applicable.	Same as formal proposal.
<b>Natural Environment</b>		
♦ Soils and Geology	No new disturbance.	Same as formal proposal.
♦ Water Resources	No affect on water resources.	Same as formal proposal.
♦ Air Quality	Minimal new emissions.	Same as formal proposal.
♦ Noise	No new resources. Possible increase in receptors (residential facilities).	Same as formal proposal.
♦ Biological Resources	Human activities may disturb upland sandpiper.	Same as formal proposal.
♦ Cultural Resources	No impact.	Same as formal proposal.

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## **CHAPTER 3**

# **AFFECTED ENVIRONMENT**

## 3.0 AFFECTED ENVIRONMENT

### 3.1 INTRODUCTION

This chapter describes the environmental conditions of the Rickenbacker Air National Guard Base (Rickenbacker ANGB) and its region of influence (ROI) as they would be at the time of base realignment. It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from disposal and reuse of portions of Rickenbacker ANGB. Although this Environmental Impact Statement (EIS) focuses primarily on the biophysical environment, some non-biophysical elements (influencing factors) are addressed, including population and employment, land use and aesthetics, transportation networks, and public utility systems in the region and local communities. This chapter also describes the storage, use, and management of hazardous materials found on base, including storage tanks, asbestos, pesticides, polychlorinated biphenyls (PCBs), radon, medical/biohazardous waste, ordnance, and lead. The current status of the Installation Restoration Program (IRP) at the base is also described. Finally, the pertinent natural resources of soils and geology, water resources, air quality, noise, biological resources, and cultural resources are described.

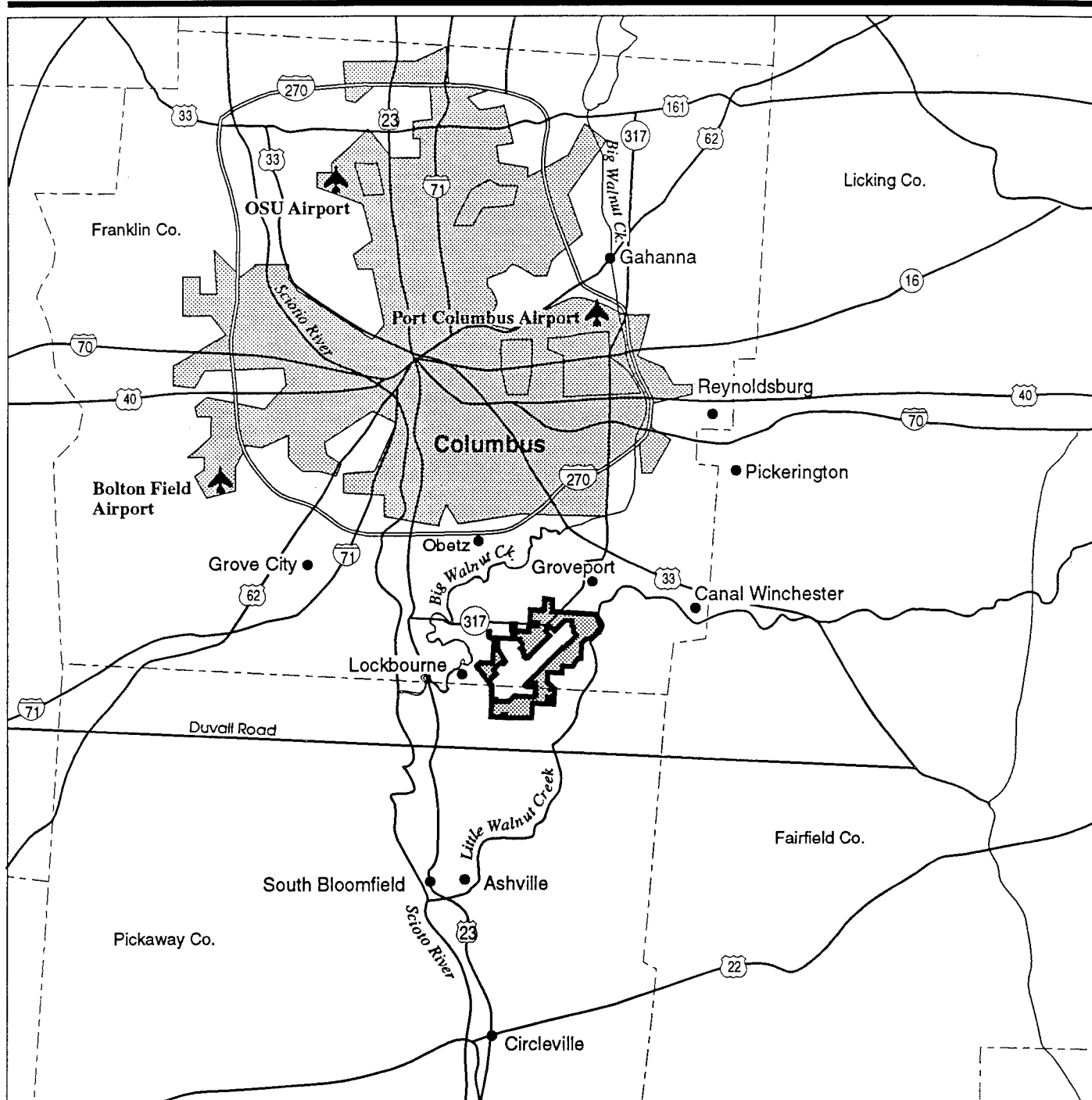
The ROI will be defined for each resource area affected by the Proposed Action and alternatives. The ROI determines the geographical area to be addressed as the Affected Environment. Although the base boundary may constitute the ROI limit for many resources, potential impacts associated with certain issues (e.g., air quality, utility systems, and water resources) transcend these limits.

The baseline conditions assumed for the purposes of analysis are the conditions projected at base realignment in September 1994. Impacts associated with disposal and/or reuse activities may then be addressed by comparing projected conditions under various reuses to realignment conditions. A reference to pre-realignment conditions is provided, where appropriate (e.g., air quality) in this document, in order to provide a comparative analysis over time. Data used to describe the pre-realignment reference point are those that depict conditions as close as possible to the realignment announcement in April 1991. This will assist the decision maker and agencies in understanding potential long-term impacts in comparison to conditions when the installation was active.

### 3.2 LOCAL COMMUNITY

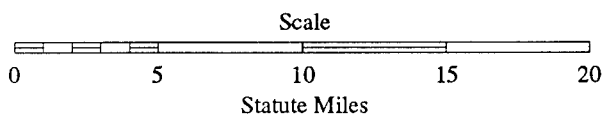
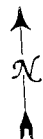
Rickenbacker ANGB is located in central Ohio, 12 miles southeast of Columbus and 1/2 mile east of the Village of Lockbourne, Ohio (see Figure 3.2-1). The base currently covers approximately 2,100 acres, on a plateau separating the Big Walnut and Little Walnut Creek drainage basins. The area in which the base is located is flat to gently rolling. There are no mountains or large hills near the base.





#### EXPLANATION

- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus
- Major Airport



#### Rickenbacker ANGB Regional Location

Figure 3.2-1

Rickenbacker ANGB lies in a slight depression on a landfilled marsh in a north-south oriented valley. Cultivated farmland surrounds the base. The Columbus metropolitan area begins about 6 miles north of the base. Terrain to the west of Rickenbacker ANGB is gently rolling, but becomes significantly rougher 35 miles to the east in the western foothills of the central Appalachian Mountains. The main spine of the Appalachians is located about 200 miles east to southeast. The closest large body of water is Lake Erie, approximately 115 miles northeast of Rickenbacker ANGB. The other Great Lakes are all more than 230 miles from Rickenbacker ANGB and do not significantly affect the local weather. Two branches of Little Walnut Creek flow on both the east and west sides of the base, and the Scioto River is located about 4 miles west. These streams are too small to have any major affect on local weather conditions.

Annual high and low temperatures from the Rickenbacker ANGB climatic brief are 103° F and -22° F. Annual mean high and low temperatures are 62° F and 43° F. Annual mean snowfall at the base is 24 inches. Mean annual relative humidity at 7:00 a.m. local standard time is 76 percent and at 1:00 p.m. is 58 percent. Winds are generally from the south with a mean wind speed of 6 knots. Maximum instantaneous peak winds reach 75 knots.

Rickenbacker ANGB is situated in a low-lying, shallow glacial valley and most of the surrounding area is marshy. These conditions contribute to the occurrence of fog and low stratus cloud cover when air conditions are stable. Under calm or light-and-variable wind conditions, air flows from higher terrain found east, south, and west of Rickenbacker ANGB. According to the current Terminal Forecast Reference Notebook for Operating Location A, Detachment 26, 26th Weather Squadron of the U.S. Air Force's Air Weather Service (which provides operational weather support at Rickenbacker ANGB), studies have indicated that the most frequent air drainage in the vicinity of Columbus, Ohio, and Rickenbacker ANGB is to the northwest, resulting in a very light southeasterly surface wind. This can result in a trapped pool of cool air over the base and, with the addition of moisture from the surrounding farmland and marshy soil, the development of radiation fog. Winds are the lightest from June into September, and summer has the highest frequency of poor visibility due to radiation fog.

The major access road to Rickenbacker ANGB is State Road (SR) 317, a divided four-lane road from its junction with Interstate 70 (I-70) south to its intersection with Groveport Road (except for a short stretch from Big Walnut Creek south to the U.S. Highway 33 interchange which is still two lanes). From Groveport Road south to the entrance gate and beyond, SR 317 is a two-lane road. Alum Creek Road, another major collector, is a four-lane undivided road between the base and the Interstate 270 (I-270) outer beltway.

The Norfolk & Southern and Chesapeake & Ohio (CSX) Railroad Companies own and operate parallel rail lines located west of Rickenbacker ANGB. Both lines are used for cargo hauling and provide no passenger services. The nearest access to passenger railway accommodations is in Cincinnati at a major hub operated by AMTRAK. The rail spur providing access to the base can be reached from the line operated by Norfolk & Southern; however, the spur is no

longer utilized and would require extensive upgrades before being used in the future.

The ROI considered for the Rickenbacker ANGB airspace analysis the maneuvering airspace used by air traffic control (ATC) for all arriving and departing air traffic in the Columbus vicinity. This designated airspace, referred to as an approach control area, extends from the surface up to 10,000 feet above mean sea level (MSL) and has been specifically delegated to the Terminal Radar Approach Control (TRACON) facility at Columbus for the control of all instrument flight rule (IFR) air traffic within this area. The key airports within this area include Rickenbacker ANGB, Port Columbus International Airport, Bolton Field, and Ohio State University Airport. There are also numerous other small public and private use airports within this ROI, although the smaller airports have relatively few aircraft operations and do not adversely affect the key airports. Airspace above 10,000 feet MSL is controlled by the Indianapolis Air Route Traffic Control Center (ARTCC) for overflights and integration of Columbus approach control area traffic into the enroute system. This upper airspace is not normally affected by airport air traffic flows within the ROI.

**Installation Background.** Rickenbacker ANGB was originally named Lockbourne Air Force Base (AFB) after the nearby village of Lockbourne. Construction on the base began in January 1942, and the base was officially activated as the Southeastern Training Center for glider pilots in the Army Air Corps. It was transferred to the Air Technical Service Command and then to the Tactical Air Command (TAC). The base consisted of 1,574 acres by the end of 1942. The base was deactivated in July 1949 and was utilized for the next 18 months as an Ohio Air National Guard (ANG) training base. It was reactivated on January 1, 1951, as a Strategic Air Command (SAC) base due to the Korean war build-up.

The 317th Troop Carrier Wing (317 TCW) moved to Lockbourne with its C-130 Hercules aircraft in June 1964, and TAC assumed command of the base in July 1965. The 317 TCW remained in command of the base until July 1, 1971, when SAC again assumed command.

The name of the base was officially changed to Rickenbacker AFB on May 18, 1974, to honor Captain Edward V. Rickenbacker, the World War I flying ace.

The Secretary of the Air Force announced the decision to realign Rickenbacker AFB and to reduce the active duty mission at the installation on March 25, 1978. The base was transferred from SAC to the Ohio ANG on April 1, 1980.

Rickenbacker ANGB is currently operated by 121st Aerial Refueling Wing (ARW) of the Ohio ANG. The 121 ARW is the base host. Current base tenants consist of the Army Aviation Support Facility (AASF) No. 2 (Ohio Army National Guard [ARNG]) and the Ohio Military Academy (Army).

Rickenbacker ANGB is presently much different in size and shape than the original base. The present layout of Rickenbacker ANGB is shown in Figure 3.2-2. Most of the changes stem from fairly recent agreements with the Rickenbacker Port Authority (RPA). The RPA already has purchased large areas of the original base, and several small portions of parcels acquired by RPA have been resold to private interests. In addition, the Navy owns 24 acres of land that were part of the original base. Today, the base consists of 151 buildings and 2,016 acres owned by the United States Air Force (Air Force) and licensed to the State of Ohio for use as a National Guard facility. After the base is closed, military use of the base will continue, but the government will no longer be responsible for maintaining the runways, parking aprons, or other facilities. The runways are now, and will continue to be, used jointly by the RPA and the military tenants.

The RPA was able to bring a civilian freight carrier (Flying Tigers, acquired by Federal Express in 1989) to the airport in 1986. The original excessing action, the joint use of the base, and the civilian cargo operations were addressed in a 1981 EIS (AIR FORCE, 1981) and a special supplement to the EIS (AIR FORCE, 1983), which deals specifically with noise and land use issues.

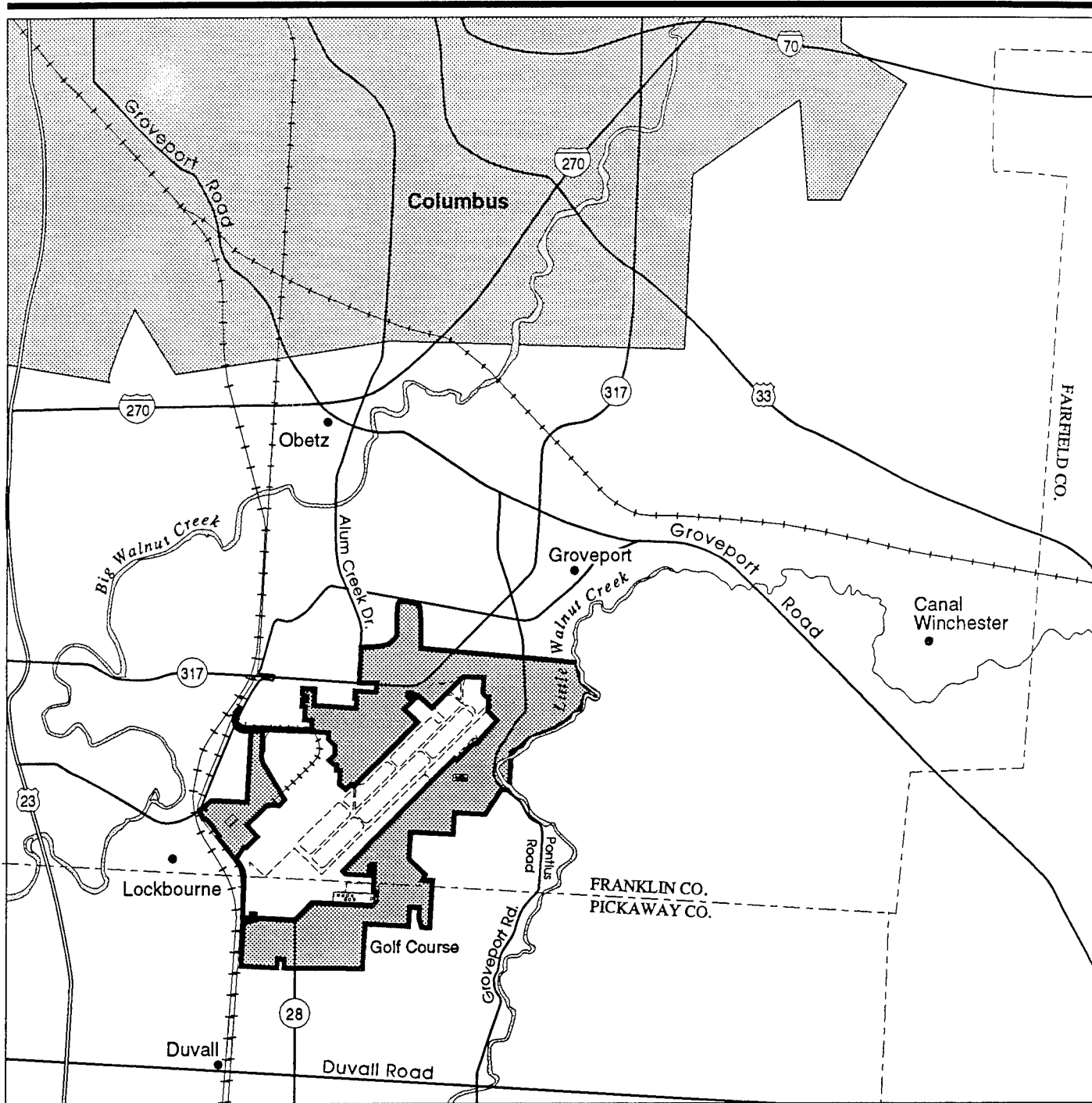
The disposal and reuse of additional excess land at the base and the conversion of the 160th ARG tankers (KC-135s) from E to R models were addressed in a 1992 Environmental Assessment (EA) (ANGRC, 1992). The planned reuse at that time was a United States Postal Service cargo operation.

The relocation of the 907th Airlift Group of the Air Force Reserve from Rickenbacker ANGB to Wright-Patterson AFB in Dayton, Ohio was addressed in a 1993 EA (ANGRC, 1993). This action involved the relocation of 10 C-141 aircraft and 230 full-time and 1,421 part-time positions.

### 3.2.1 Community Setting

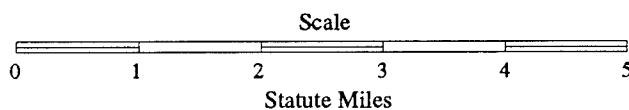
Rickenbacker ANGB is located primarily in Franklin County with a small portion in Pickaway County (Figure 3.2-2). The nearest population centers are Lockbourne, west of the base; Duvall, 1-1/2 miles to the south; Groveport, 3 miles to the northeast; and Canal Winchester, 5 miles to the northeast. The closest metropolitan area is Columbus, located approximately 6 miles to the north.

The ROI is defined as the region in which the principal direct and secondary socioeconomic effects of realignment and reuse actions at Rickenbacker ANGB are likely to occur and are expected to be of most consequence for local jurisdictions. The ROI is comprised of two contiguous counties: Franklin and Pickaway. The majority of the socioeconomic effects, however, would be experienced in Franklin County and the communities of Columbus, Groveport, Lockbourne, and Reynoldsburg.



#### EXPLANATION

- Rickenbacker ANGB Base Boundary
- █ Rickenbacker Port Authority Boundary
- - - Existing rail spur
- ▨ City of Columbus



#### Rickenbacker ANGB and Vicinity

Figure 3.2-2

The major industries and employment sectors in the ROI are the services and retail trade sectors, providing 28 percent and 20 percent of total employment in the ROI, respectively (U.S. Department of Commerce, Bureau of Economic Analysis, 1992). From 1980 to 1990, total employment in the two-county ROI grew at an average annual rate of 3 percent, increasing from 537,270 to 706,253. Military employment accounts for less than 1 percent of total employment in the ROI, amounting to 3,758 jobs in 1980 and 4,356 jobs in 1990. Rickenbacker ANGB employment is approximately 1,100 full-time and 3,055 part-time personnel. About 75.0 percent of these personnel are military.

The population of the ROI increased from 912,788 in 1980 to 1,009,692 in 1990, a 10.6 percent increase respectively (U.S. Department of Commerce, Bureau of Economic Analysis, 1980 and 1990). The population of the State of Ohio increased by only eight-tenths of 1.0 percent during the same period. The population of the ROI is projected to increase to 1,111,000 by the year 2000. From 1980 to 1990, the population of Columbus increased from 565,021 persons to 632,910 persons, a growth rate slightly faster than that of the ROI.

As a percentage of the total population, military and civilian full-time personnel represent less than three-tenths of 1.0 percent of the ROI population. The Rickenbacker ANGB population in the ROI is estimated to be 2,590 persons, roughly two-tenths of 1.0 percent of the total ROI population, which was 1,113,153 in 1990.

There were 421,803 housing units in the ROI in 1990. Of the total housing stock, the greatest number of units (405,418 units) were located in Franklin County (U.S. Bureau of Census, 1990). The total number of housing units in the City of Columbus increased from 236,801 in 1980 to 278,084 in 1990, a 17.4 percent increase.

Housing within Franklin County was 54.9 percent owner-occupied and 45.1 percent renter-occupied in 1990. The percentage of owners within the State of Ohio is somewhat higher at 67.5 percent (U.S. Bureau of Census, 1990). The distribution of owners and renters is greatly influenced by the urbanized areas within Franklin County, where only 47.0 percent of the housing in Columbus is occupied by owners.

The cost of housing tends to vary within the ROI. The specified median value of a home in 1990 ranged from a low of \$62,200 in Pickaway County to a high of \$73,800 in Franklin County (U.S. Bureau of Census, 1990). Median contract rents in 1990 tended to exhibit similar qualities. On average, the community of Reynoldsburg had the highest reported housing costs in 1990.

### **3.2.2 Land Use and Aesthetics**

This section describes the land uses and aesthetics for the base property and the surrounding areas of Rickenbacker ANGB at base realignment. Projected land uses at realignment are assumed to be similar to existing land uses in the vicinity of the base unless specific development plans project a change. The

ROI includes the base property and potentially affected adjacent properties within the jurisdiction of Groveport, Lockbourne, and portions of Franklin and Pickaway counties. Other communities within the ROI include the villages of Obetz and Canal Winchester in Franklin County, and South Bloomfield, Asheville and Duvall in Pickaway County.

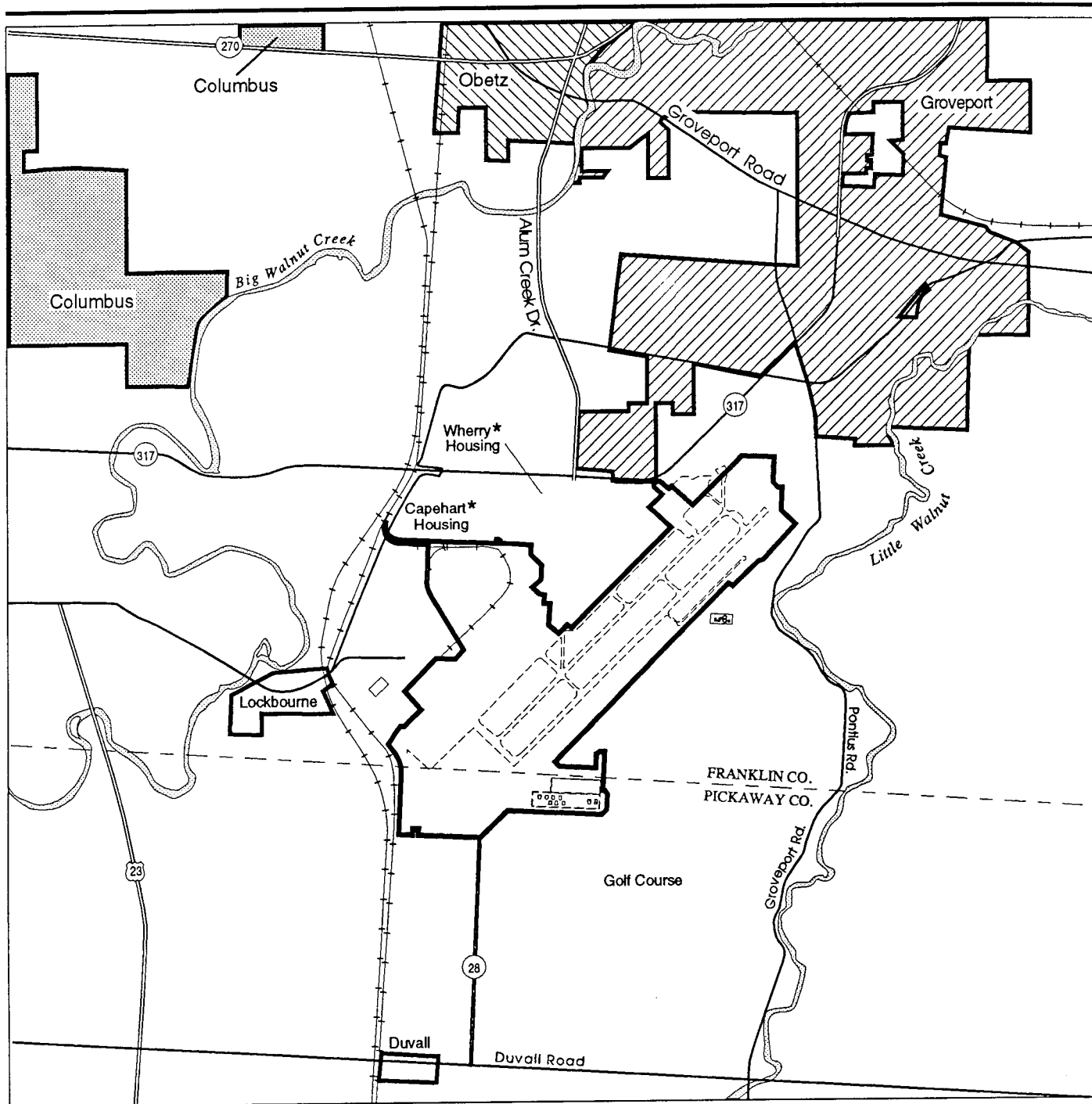
Most property adjacent to the base is owned by the RPA. Remaining adjacent property to the northeast belongs to several owners and is primarily agricultural with rural residential use within Franklin County. To the southwest, on the far side of South Perimeter Road, is a railroad easement corridor for the Chesapeake & Ohio and Norfolk & Western railroads. Directly adjacent to the base on the north side of an existing rail spur is privately owned multi-family housing (located on previously owned base property). Areas adjacent to RPA property surrounding the base are primarily within unincorporated areas of Franklin and Pickaway counties. The incorporated village of Lockbourne is adjacent to RPA property immediately west of the base. A small incorporated portion of Groveport extends to the airport boundary on the north side between Alum Creek Drive, Rohr Road, and SR-317. Future expansion areas in the RPA Master Plan would extend slightly into the south part of Groveport. All other expansion areas would be in unincorporated areas of Franklin and Pickaway counties. These areas are held by numerous property owners with a few large single-owner parcels. The expansion areas include several rural homesteads along London Road in Franklin County, single family homes along Duvall and Lockbourne eastern roads, two mobile home parks on Asheville Pike south of Airbase Road, and a few properties in the unincorporated community of Duvall. The location of communities in the ROI is shown in Figure 3.2-3.

Due to the orientation of the airfield, large portions of Groveport with residential development have been affected by noise levels in excess of 65 decibels (dB) (the maximum level recommended by the Federal Aviation Administration [FAA] for compatibility with residential land use), particularly when air cargo activity was high in the late 1980s. Flight tracks design, preferential runway use and reduced power settings are methods being used to minimize noise over Groveport's residential areas. As most air operations take off to the southwest, a greater area of Pickaway County is affected by noise levels above 65 dB; however, residential patterns in this area are typically of a lower density.






### **3.2.2.1 Land Use.**

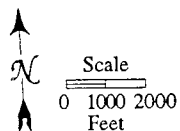
**Land Use Plans and Regulations.** The comprehensive plan for a jurisdiction represents the official position on long-range development and resource management. The position is expressed in goals, policies, plans, and actions regarding the physical, social, and economic environments, both now and in the long term.

The base straddles the Franklin/Pickaway County boundary. Neither county has a General Plan or Master Plan, and planning objectives are executed through the zoning process. The City of Columbus exerts a large influence on regional development. A Comprehensive Plan for the city includes the Rickenbacker



#### EXPLANATION

- |                                                                                     |                      |                                                                                     |                                               |
|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|
|  | City of Columbus     |  | Rickenbacker Air National Guard Base Boundary |
|  | Village of Groveport |  | Rickenbacker Port Authority Boundary          |
|  | Village of Obetz     | *                                                                                   | Private Housing, Formerly Base Housing        |



#### City Boundaries

Figure 3.2-3



1 ANGB vicinity in its planning area. The plan identifies the Rickenbacker ANGB  
2 area, including the adjacent residential areas at the northwest edge of the base,  
3 as a future fringe village, where mixed use would offer opportunities for model  
4 community development. The Big and Little Walnut Creeks would be preserved  
5 as conservational and recreational corridors. An expansion development district  
6 would be established in the south-southeast part of the city's planning area  
7 where public facilities and services are not generally available at this time. This  
8 district would stretch along the Franklin County border from the Scioto River in  
9 the west to Fairfield County in the east. The City of Columbus has a policy of  
10 annexing areas to which services are extended.

11 The city's Comprehensive Plan supports a policy of infill-annexation to avoid the  
12 costs of extending infrastructure. However, annexation of peripheral areas will  
13 continue, particularly in areas that have high revenue potential. Recently, a city  
14 water service line was extended to the base. Water is supplied by the City of  
15 Columbus through a contract to the Village of Groveport, which sells it to the  
16 base. Disposal properties would initially fall under the jurisdiction of Franklin and  
17 Pickaway counties. Franklin County does not have plans to annex the base  
18 property after disposal; therefore, it is likely that the City of Columbus may  
19 annex this area in the future.

20 The villages of Groveport and Canal Winchester have official Comprehensive  
21 Plans, incorporating maps and policies that establish the goals and objectives for  
22 development and redevelopment. The Village of Groveport, directly northeast of  
23 the airport, is actively expanding and seeking to capture industrial enterprise  
24 and, at the same time, maintain its village quality of life in residential areas. The  
25 Comprehensive Plan supports development of Rickenbacker International  
26 Airport for air cargo activity. Groveport has attempted to make development  
27 plans consistent with the aircraft traffic patterns from Rickenbacker ANGB by  
28 requiring larger lot sizes in areas subject to aircraft noise and designating much  
29 of the area as light industrial and low density residential. Groveport has  
30 extended water and sewer service to the north side of SR-317 and incorporated  
31 the area being developed for a 2.1 million-square-foot warehouse facility by  
32 Spiegel/Eddie Bauer.

33 Canal Winchester is similar to Groveport, with a small town residential core on  
34 the east side of the incorporated area. Much of the land in the western portion of  
35 the jurisdiction is in the floodplain of the Little Walnut Creek and is  
36 undevelopable. The remaining areas on the west side of the village are mostly  
37 designated for manufacturing, commercial and planned development.

38 The Village of Lockbourne has no comprehensive plan in place, but some  
39 residents are interested in developing the old canals in the area as an historic  
40 and recreational pathway. This would eventually link with similar canal projects  
41 in the City of Columbus to provide a continuous historic pathway network  
42 (personal communication, Rumora 1993).

43 The Mid-Ohio Regional Planning Commission (MORPC) (MORPC 1992a,  
44 1992b, 1993, 1994-1997) does planning for the region and assists communities  
45 in obtaining funds for projects, such as home weatherization and highway  
46 repairs. MORPC is the designated Metropolitan Planning Organization for the  
47 Columbus urbanized area, with responsibility for the regional transportation  
48 planning process. MORPC approves and assists in developing the 5-year

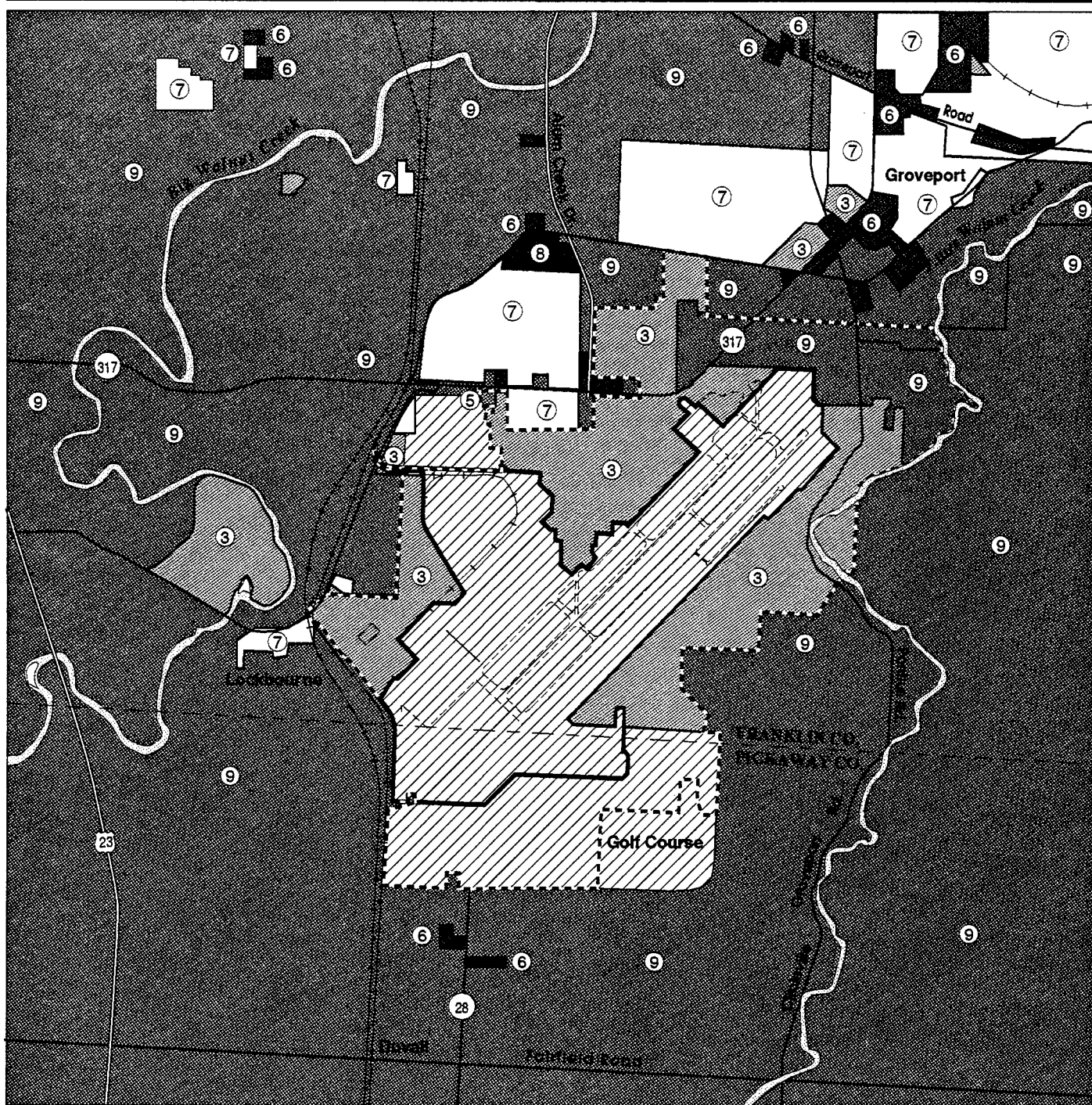
1 Transportation Improvement Program (TIP) and Transportation Plan, together  
2 with the Ohio Department of Transportation (ODOT) and the Central Ohio  
3 Transit Authority (COTA). This process is a prerequisite for federal approval and  
4 funding of highway projects. There are no proposed highway projects in the TIP  
5 for the Rickenbacker area within the 1993-1997 planning period. However, the  
6 RPA has been working with ODOT to expand and possibly realign SR-317 to  
7 provide better access to the interstate and state highway systems to new  
8 development in the area. Ongoing studies are being conducted to assess the  
9 economic development potential and possible highway alignments for this  
10 project. MORPC has also undertaken an Inland Port Infrastructure Improvement  
11 study to determine future transportation needs to support possible growth of  
12 Columbus as a major inland distribution center.

13 The RPA has developed an Airport Master Plan that incorporates both aviation  
14 and industrial expansion at the airport. This plan is considered the community  
15 reuse plan and is the basis for the Proposed Action to be analyzed in the  
16 Environmental Impact Analysis Process (EIAP).

17 **Zoning.** Zoning is the legal mechanism that provides for the division of  
18 jurisdictions, in conformity with a general plan, into districts within which height  
19 of structures, open space, building coverage, density, and type of future land  
20 uses are set forth. Zoning is designated to achieve various community  
21 development goals, including base reuse plans. Zoning in the vicinity of the  
22 base is shown in Figure 3.2-4.

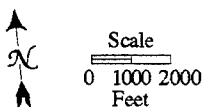
23 Portions of Rickenbacker ANGB are within Franklin and Pickaway counties. No  
24 portion of the base is currently within the jurisdictional boundaries of an  
25 incorporated municipality. Planning objectives in both counties are executed  
26 through the zoning process. Most of the base is within Franklin County in  
27 Hamilton and Madison townships. Both of these townships have adopted the  
28 Franklin County zoning ordinance, and the zoning process goes through the  
29 county. Franklin County also administers building and subdivision regulations.  
30 In the unincorporated areas, the default zoning is rural residential. Zoning  
31 changes for other land uses are done on a case-by-case basis. Spot zoning  
32 changes in the vicinity of the base are shown in Figure 3.2-4. Commercially  
33 zoned pockets occur along SR-317 and Alum Creek Drive. There is a small  
34 area zoned for general industrial use on Canal Road, west of the base, and a  
35 pocket for heavy industrial just to the south, on the north edge of the Village of  
36 Lockbourne. A large area of residentially zoned land is located on the north side  
37 of SR-317 west of Alum Creek Drive, but is currently undeveloped. An  
38 exceptional use area along Rohr Road is used for a pitch and putt golf course.  
39 The base is currently not zoned by Franklin County since it is under the  
40 jurisdiction of the Federal Government. Property that has been transferred to  
41 the RPA is zoned for general industrial use. Incorporated municipalities in the  
42 vicinity of the base, such as the City of Columbus and villages of Groveport,  
43 Canal Winchester, Obetz, and Lockbourne have their own zoning ordinances.  
44 The Village of Groveport extends south to the airport boundary. The areas  
45 closest to the airport are zoned for industrial use. Southern portions of  
46 Groveport, beyond the northeast end of the existing runways, are zoned for low-  
47 density residential development.

48 In Pickaway County, subdivision is regulated at the county level, and zoning is  
49 regulated within each township. The portion of Rickenbacker ANGB in Pickaway  
50 County lies within Harrison Township and borders Madison Township (distinct



# EXPLANATION

1	*Airfield	6	Commercial
2	*Aviation Support	7	Residential
3	Industrial - General	8	Public/Recreation
3	*Industrial - Warehousing	9	Agriculture (Rural Residential)
4	*Institutional (Medical)	10	*Vacant Land
5	Institutional (Education)	11	*Military
			Unzoned
			Rickenbacker ANGB Boundary
			Rickenbacker Port Authority Boundary
			* Not Applicable



## Zoning in Vicinity of Rickenbacker ANGB

Figure 3.2-4

from Madison Township in Franklin County). Harrison Township permits farms and rural residential uses (about 1 acre per dwelling). Other uses require approval at township zoning meetings. There are no plans for changes in this land use and zoning pattern. No new commercial or industrial uses are known or proposed at this time. The incorporated municipalities of Asheville and South Bloomfield have zoning ordinances. Madison Township is also zoned for farming residential, and other uses need to be approved by the township zoning board. There is no manufacturing in the township, and the only commercial use area is Steeplechase Golf Course on the southeast edge of the Rickenbacker Airport. The City of Columbus recently purchased land in Madison Township with water rights to underlying aquifers, in order to supplement the city water supply for the future. The unincorporated areas of Pickaway County have been preserving the quality and type of life associated with rural land use patterns in a no-growth mode.

In 1958, Franklin County Board of Commissioners adopted the Lockbourne Air Force Base Protector Plan, which established minimum lot sizes of 1 to 5 acres in unincorporated areas of Franklin County in the approach zones and environs of the airfield. This plan has functioned more as a planning tool than a zoning regulation, particularly by restricting the rezoning of land in approach zones around the airport for more intensive uses and limiting subdivision. The City of Columbus Comprehensive Plan recommends establishing Airport Districts in the region to provide additional zoning restrictions in order to prevent incompatible development. An Airport Overlay District is indicated for Rickenbacker Airport.

**On-Base Land Use.** Land use identifies the present land usage by various general categories. Existing (pre-realignment) land uses on the base property are described in this section.

Rickenbacker ANGB was originally named Lockbourne AFB. Construction at the base began in January 1942, and the total base area by the end of that year was 1,574 acres. The original airfield had an X-configuration with one runway running northwest to southeast, and the other northeast to southwest. During the early 1950s the base grew from about 1,600 acres to over 4,000 acres, and a new parallel runway configuration was constructed. The base was renamed Rickenbacker AFB in 1974.

In 1978, the active duty mission was reduced at the base. In 1980, the U.S. Air Force was reduced at the base. In 1980, the Air Force closed the base and transferred control to the Ohio ANG. As part of this realignment, portions of the base were excessed. The RPA, created by the Franklin County Commissioners, acquired 1,643 acres in 1984 as part of this down-sizing. About 300 acres, including the Capehart and Wherry housing areas and golf course were purchased for private development.

From 1984 to the present, the base has encompassed 2,016 acres held in fee simple, and about 250 acres in leases and easements for navigation purposes and drainage ditches (Ohio ANG, 1993). It is anticipated that these leases and easements would terminate at the time of realignment.

There are currently five out-leases issued by Rickenbacker ANGB. These include three leases to the RPA comprising about 1,330 acres for use of the runways, aprons, and joint-use areas, including Building 1050 and adjacent aprons, and three bulk storage fuel tanks. It is anticipated that these leases will continue after realignment, giving the RPA use of the airfield until the expiration

date in the year 2061, and use of the alert facility and ramp area until the year 2041. A fourth lease to the RPA for Building 5 is used for Ohio Bell switching equipment. Portions of this building have been demolished for current roadway projects, but the equipment, which would be difficult to move, remains in this location. A fifth lease was issued to the RPA for Building 505 for prototype aircraft research and development.

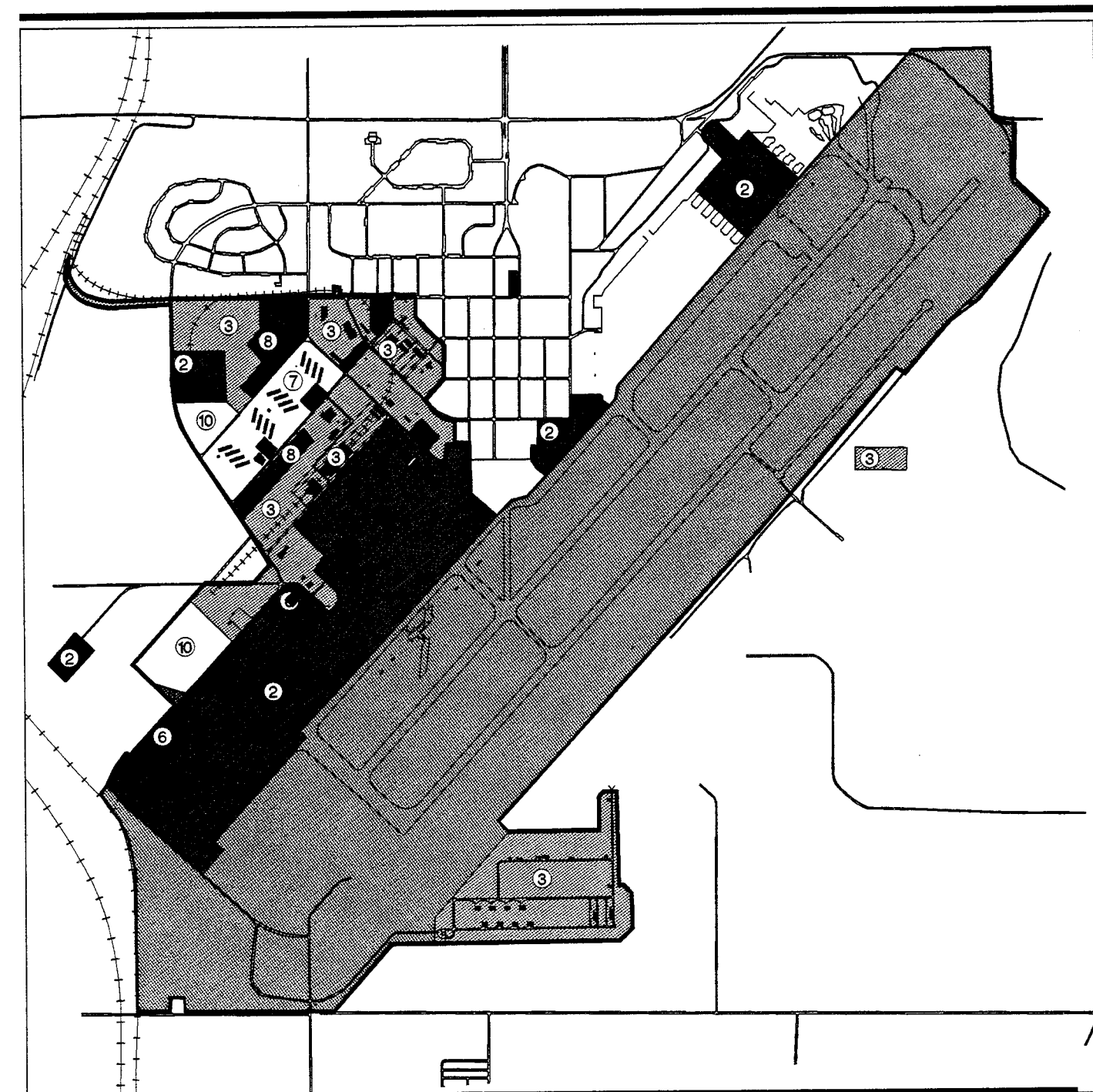
The Air Force is transferring about 129 acres of flight line property to the Ohio Army National Guard to continue its mission at the airfield. Also, through a modification of the original recommendation of the Defense Base Realignment and Realignment Commission, the Ohio ANG, 121 ARW will retain about 179 acres as a cantonment area for continuing its mission at Rickenbacker ANGB. Of this, 170 acres form a contiguous parcel located along the airfield, and the remaining 7 acres are comprised of five separate parcels.

The base has been divided into 15 parcels that coincide with existing lease boundary areas, military retained areas, areas that are functionally related, and isolated or non-contiguous areas. The parcels, identifying features, and approximate acreage are listed in Table 3.2-1.

The existing land uses at Rickenbacker ANGB are shown in Figure 3.2-5. Brief descriptions of each land use category are also provided below, with corresponding acreage identified in Table 3.2-2.

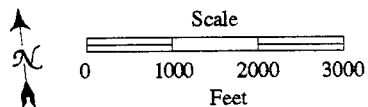
**Table 3.2-1. Base Parcels**

Parcel	Description	Area (Acres)
A	Old sewage treatment plant	6
B	Munitions storage area	94
C	Airfield (leased by RPA)	1,292
D	Ohio Army National Guard cantonment	132
E	Ohio Air National Guard main cantonment	174
E1	Transmitter site (Ohio Air National Guard)	
E2	Communications site (Ohio Air National Guard)	5
E3	Dining hall and clinic (Ohio Air National Guard)	<1
E4	Corrections facility (Ohio Air National Guard)	3
E5	Base operations and tower (Ohio Air National Guard)	<1
F	Aviation support, hangars	<1
G	Aviation support (leased by RPA)	24
H	Old alert facility and ramp (leased by RPA)	11
I	Aviation support administrative facilities	31
J	Old warehousing and storage area	10
K	Undeveloped area and hazardous waste storage	54
L	Industrial and warehousing	44
M	Community/residential	46
N	Aviation support bulk fuel storage area	71
O	Telephone switchboards (leased by RPA)	60
		1



# EXPLANATION

- |                              |                              |
|------------------------------|------------------------------|
| ① Airfield                   | ⑥ Commercial                 |
| ② Aviation Support           | ⑦ Residential                |
| ③ Industrial - General       | ⑧ Public/Recreation          |
| ③ Industrial - Warehousing   | ⑨ *Agriculture               |
| ④ *Institutional (Medical)   | ⑩ Vacant Land                |
| ⑤ *Institutional (Education) | ⑪ *Military                  |
|                              | — Rickenbacker ANGB Boundary |



\* Not Applicable

## Existing On-Base Land Use

**Figure 3.2-5**

Table 3.2-2. Land Use Categories

Land Use	Acreage
Airfield	1,265
Aviation Support	337
Industrial - General	245
Industrial - Warehousing	24
Commercial	34
Institutional Medical	1
Residential	43
Public/Recreation	31
Vacant	36
<b>Total</b>	<b>2,016</b>

The airfield comprises about 1,265 acres and is centered on parallel runways oriented northeast/southwest. This area is part of the property leased by the RPA for use as an airfield.

Approximately 337 acres are used for aviation support functions. These areas are primarily located on the north side of the airfield, along the flight line. A small non-contiguous parcel on the west side of the airport is used for transmitter equipment, and an area of about 15 acres on the northwest side of the base off of Tank Truck Road is the site of the jet fuel storage tanks and facilities. The Ohio ANG will continue to use two fuel tanks temporarily (for 1 to 5 years) after realignment until new fuel storage facilities are constructed in the main cantonment area. About 40 acres within this category are leased to the RPA along the airfield, including the tower building, fire stations, and old alert facility and adjacent ramp areas. The aviation support areas include about 420,000 square feet of hangar space. Of this, about 333,000 square feet will be retained for military use after realignment.

About 245 acres of base land is used for industrial functions. A small non-contiguous parcel south of the airfield is the site of the former sewage treatment plant. About 94 acres, also on the south side (industrial use land), is located in the northwest portion of the base beyond the aviation support areas. These are used for maintenance shops, hazardous waste storage, general storage, and mission support functions. A number of facilities are abandoned, including the old heat plant and old water treatment plant. An additional 24 acres are designated as warehousing areas. One warehouse area includes the two main base supply warehouses with about 150,000 square feet of warehouse space. Building 872 (about 37,000 square feet) will be retained by the Ohio ANG. The other area, close to the existing main gate, has many original base structures built in the 1940s, most of which are abandoned or in poor condition.

Commercial areas include 34 acres scattered through the northwest side of the base, and are mostly offices being used for administrative functions. This category also includes the Base Exchange (BX) located on Tank Truck Road,



the gas station near the entry gate, and the military clothing sales building along Second Street.

Institutional medical land use accounts for 1 acre and coincides with the Base Clinic on Second Street. This building and some adjacent parking will be retained by the Ohio ANG after realignment.

About 43 acres are designated as residential between Second Street, Tank Truck Road, and Club Road. The area has 16 dormitories with approximately 402,200 square feet of floor area. Of this, about 75,000 square feet (Buildings 860, 861, and 862) have been extensively renovated for use as billeting quarters. About nine dormitories (200,000 square feet) have been leased to the Ohio ARNG for the Ohio Military Academy. Building 868 is partially leased to the Naval Engineering Command and Civil Air Patrol. It also houses communications equipment for the Ohio ANG and will be retained after realignment for this use. The remaining dormitories are not in use. About nine of the dormitories are in poor condition, four are in fair condition, and three are in very good condition. Several federal and independent agencies have proposed uses of some or all of these dormitories, including billeting, homeless housing, dormitories, classrooms, and administrative offices.

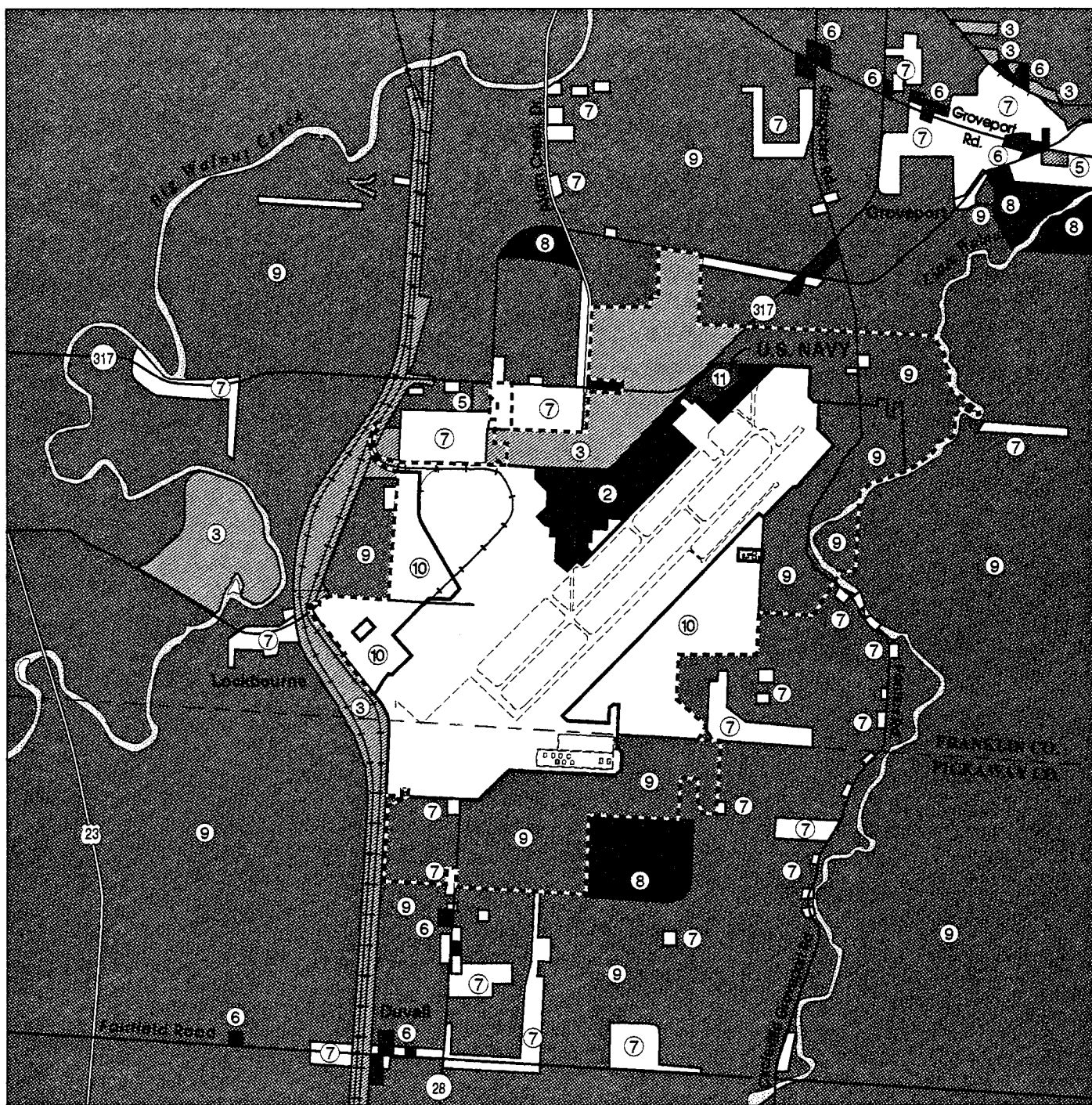
About 31 acres are used for public/recreation on the west side of Tank Truck Road in the vicinity of the dormitories. Facilities include the Officers Club, swimming pool, gymnasium, two baseball fields, and outdoor track. These facilities have also been requested by several federal and independent agencies for uses similar to pre-realignment conditions. The Officers Club and related facilities would require considerable renovation and maintenance.

About 36 acres are classified as vacant. One area between the dormitories and the jet fuel storage area has not been developed. A second area north of South Perimeter Road near the existing hazardous waste storage area is also undeveloped. Portions of the airfield within the RPA leased area are part of clear zones and cannot be developed. Although vacant, these areas have been included in airfield land use categories.

**Adjacent Land Use.** Land use may or may not conform with zoning. The existing land uses in the immediate vicinity of the base are discussed in this section.

Most of the base is surrounded by land owned by the RPA that is operated as the Rickenbacker International Airport (see Figure 3.2-6). A large parcel on the west side, between the base and Canal Road, and extensive land on the south side of the airfield have not been developed. The RPA has acquired new property on the south side of the airfield at the northeast end of the existing runways to provide additional clear zone and buffer space to prevent future encroachment. The RPA has been developing and marketing its land on the north side of the airfield along SR-317 as an air/industrial park. In the last few years, over 380 acres have been sold and are being developed with large warehouse and distribution enterprises, including the 2.1 million-square-foot distribution center for Spiegel/Eddie Bauer, and a 500,000 square-foot facility for Whirlpool, Inc. The remaining RPA property on the north side of the airfield is being used for aviation support and air cargo operations.





# EXPLANATION

- |                             |                                            |
|-----------------------------|--------------------------------------------|
| 1 *Airfield                 | 6 Commercial                               |
| 2 Aviation Support          | 7 Residential                              |
| 3 Industrial - General      | 8 Public/Recreation                        |
| 3 *Industrial - Warehousing | 9 Agriculture (and rural residential)      |
| 4 *Institutional (Medical)  | 10 Vacant Land                             |
| 5 Institutional (Education) | 11 Military                                |
|                             | — Rickenbacker ANGB Boundary               |
|                             | - - - Rickenbacker Port Authority Boundary |

Scale  
0 1000 2000  
Feet

\* Not Applicable

## Existing Off-Base Land Use

Figure 3.2-6

Rickenbacker ANGB Disposal and Reuse DEIS

1 Most of the area beyond the airport and base is being farmed and is not  
2 intensively developed. The largest concentration of residential development is  
3 in Groveport, a town of approximately 3,000 people, situated approximately 2  
4 miles northeast of the approach end of runways 23 R/L. Groveport mainly  
5 consists of older, single-family housing with a small commercial center. The  
6 majority of the surrounding area is agricultural. Two subdivisions have been  
7 developed near Groveport: (1) northeast at Ebright and Bixby Roads, and (2)  
8 southeast at Richardson and Hayes Roads. Multi- and single-family housing are  
9 located on former air base property. Single-family homes are located in  
10 unincorporated areas (south and east of Rickenbacker ANGB).

11 Single family homes also are located along roadways in unincorporated areas  
12 around the base in both Franklin and Pickaway counties. The Village of  
13 Lockbourne, just west of the base is primarily residential with community  
14 facilities and a few retail businesses.

15 There are several large mobile home parks in Pickaway County:

- 16 • 108 units at Shepard Road, on the east side of U.S. Highway 23;
- 17 • 298 units at the Lockbourne Lodge and Poplar Grove parks on  
18 Lockbourne Road south of Air Base Road;
- 19 • 241 units at the Mann Mobile Home Park on Harrisburg-Fairfield  
20 Road; and
- 21 • 136 units at Scioto Estates park near the intersection of state routes  
22 104 and 316.

23 Mobile homes are also located on scattered lots throughout the area around  
24 Rickenbacker ANGB.

25 There are few multi-family housing units in the Rickenbacker ANGB area; most  
26 of them are located on former air base property south of SR 317 and west of  
27 Alum Creek Drive. Groveport also has some housing of this type, notably the  
28 approximately 190 units near Hendron Road, north of Groveport Road and west  
29 of the village.

30 There are approximately 20 churches and six schools in the area, most in the  
31 vicinity of Groveport. Groveport Elementary and Groveport-Madison Freshman  
32 School are of particular interest because they are located approximately 2 miles  
33 northeast of the runways and between the extended runway center lines.

34 Other industrial activity in the vicinity of the base includes small industrial  
35 operations along Canal Road to the west. The Chesapeake & Ohio and Norfolk  
36 & Western railroad corridor, used largely for transporting coal through the region,  
37 is located beyond Canal Road. Quarries in the Big Walnut Creek provide local  
38 construction material. New industrial park growth is occurring in Groveport and  
39 Obetz. Both of these communities, and Canal Winchester farther east, have  
40 incorporated large areas for planned industrial parks on the south and west

sides, in areas closest to industrial development at Rickenbacker ANGB, in anticipation of capturing more industrial development.

Most of the land immediately beyond the airport boundaries that is undeveloped is classified by the U.S. Soil Conservation Service as prime farmland. Areas within Rickenbacker ANGB and most of the property owned by the RPA have been reclassified due to previous disturbance or potential for future airfield development. The RPA has recently sold or acquired over 500 acres of land for industrial and/or airfield uses that is designated as prime farmland in Franklin County.

**Air Force Policies Affecting Adjacent Land Uses.** The Air Force has developed the Air Installation Compatible Use Zone (AICUZ) program to minimize development that is incompatible with aviation operations in areas on and adjacent to military airfields. The AICUZ program applies only to military airfields. Similar criteria are established by the FAA for civilian airports. Rickenbacker ANGB has been a joint-use airport, operated and managed by the RPA since before the AICUZ program was initiated. A similar study (a Part 150 Study) required by the FAA in order for airports to qualify for federal funding, was conducted for the airfield in 1988. Part 150 of the Federal Aviation Regulations (FAR) sets minimum standards for airport noise compatibility and establishes an approach for conducting these studies. The Part 150 Study is aimed at establishing and implementing aircraft noise control measures and recommending compatible land uses in areas affected by aircraft noise. After the realignment of Rickenbacker ANGB, FAA criteria will continue to apply to airport activities and development.

Compatibility of land uses with noise generated by flight and ground operations at nearby airports is a goal established by federal policy (the Department of Transportation [DOT] Noise Policy of 1976) and federal regulation (the Aviation Safety and Noise Abatement Act of 1979 and the FAR Part 150). There are no specific land use compatibility policies or goals at the state level. Land use compatibility planning, however, may be conducted by local counties and municipalities under state laws, which enable local land use planning. None of the jurisdictions in the study area have officially adopted zoning measures specifically relating to noise compatibility planning, although some local efforts in this area have been made.

The land use compatibility guidelines from FAA Advisory Circular (AC)150/5020-1, as expanded from FAR Part 150, represent federal policy toward land use compatibility. These guidelines have evolved with little change over the past 30 years or more and are used by the FAA in evaluating noise impacts when making funding decisions; by federal agencies in preparing environmental assessments and impact statements; and by the Department of Housing and Urban Development (HUD) and other agencies in processing mortgage insurance for housing and convalescent care facilities.

The Part 150 or AC 150/5020/1, land use compatibility guidelines are almost universally used in noise studies and land use planning throughout the United

States exactly as set forth in Part 150 or the circular. However, these guidelines are not regulations and may be modified to better fit specific local situations or different local concerns and goals. Land use planning, zoning, and development control are powers reserved to the states and to local communities. The Part 150 guidelines represent recommendations for minimum levels of land use control and are not an attempt by Congress or the FAA to preempt or otherwise constrain the use of those local powers. However, to the extent that they deviate from the FAA guidelines, local governments must defend their regulations without the support and prestige of federal research and policy.

In addition to the agreements related to the Part 150 Study, the RPA and the Village of Groveport have entered into a "Noise Reduction Agreement," which includes provisions relating to land use measures intended to foster noise compatibility in the area. Noise abatement procedures, including flight track design, reduced power settings at takeoff, preferential runway utilization, land acquisition and soundproofing for Groveport-Madison Elementary School and Groveport Freshman School have been implemented at the airfield in accordance with the Part 150 study.

The FAA also prescribes Runway Protection Zones (RPZs) at either end of runways. These are object-free areas where development and structures are not permitted in order to protect safety of navigation and to limit incompatible use in areas where accident potential is more probable. The RPZs for the existing airfield are within existing Rickenbacker ANGB boundaries, with the exception of a small area to the northeast. This area within the RPZ beyond the current airport boundaries is identified for acquisition by the RPA in the Part 150 Study. Existing RPZs are shown in Figure 2.3-3 and acquisition areas for the current airfield are shown in Figure 2.2-1.

**Realignment Baseline.** At the time of realignment, about 308 acres within Rickenbacker ANGB will be used for continuing military use, primarily along the runways. The remaining base area would be available for disposal. It is anticipated that the RPA would continue to operate the airport for general aviation and air cargo operations. Noise levels at the time of realignment would be somewhat reduced from pre-realignment conditions when Federal Express air cargo hubbing activity was high. Most of the residential portions of Groveport would not be affected by noise levels above 65 dB due to the recent decline in air cargo activity. Most off-base areas affected by noise levels above 65 dB and above would be agricultural with scattered homesteads.

**3.2.2.2 Aesthetics.** Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. Criteria used in the analysis of these resources include visual sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes in its quality. Visual sensitivity is categorized in terms of high, medium, or low levels.

High visual sensitivity exists in areas where views are rare, unique, or in other ways special, such as in remote or pristine environments. High-sensitivity views

would include landscapes that have landforms, vegetative patterns, water bodies, or rock formations of unusual or outstanding quality.

Medium visual sensitivity areas are more developed than those of high sensitivity. Human influence is more apparent in these areas and the presence of motorized vehicles and other evidence of modern civilization is commonplace. These landscapes generally have features containing varieties in form, line, color, and texture, but tend to be more common than high visual sensitivity areas.

The area around Rickenbacker ANGB is flat to gently rolling farmland, broken up by small pockets of residential development, farm buildings and occasional water courses. Stands of deciduous trees, such as sugar maple, ash, elm, oak, cottonwood, apple, and black walnut, are common along rivers, marshes and roads and in the residential developments and farm holdings.

There are no wild and scenic rivers or designated scenic roads or vistas near the base. The nearest state parks are the A.W. Marion State Park at Hargus Lake northeast of Circleville and the Deer Creek State Park on Deer Creek Lake southeast of Pancoastburg. A.W. Marion State Park is 12 miles south of the base and Deer Creek State Park is 18 miles southwest.

The effect of existing flying activities at Rickenbacker ANGB on visual resources is minimal.

### **3.2.3 Transportation**

Transportation addresses roadways, airspace and air transportation, and railroads. The ROI for the transportation analysis includes the existing principal road, air, and rail networks in the local communities of Groveport, Lockbourne, and Canal Winchester with emphasis on the immediate area surrounding Rickenbacker ANGB. Within this geographic area, the analysis focuses on the segments of the transportation networks that serve as direct or key indirect linkages to the base and those that are commonly used by Rickenbacker ANGB personnel.

**3.2.3.1 Roadways.** The evaluation of the existing roadway conditions focuses on capacity, which reflects the ability of the network to serve the traffic demand and volume. The capacity of a roadway depends mainly on the street width, number of lanes, intersection control, and other physical factors. Traffic volumes typically are reported, depending on the project and database available, as the daily number of vehicular movements (e.g., passenger vehicles and trucks) in both directions on a segment of roadway, averaged over a full calendar year (average annual daily traffic [AADT]), or averaged over a period less than a year (average daily traffic [ADT]), and the number of vehicular movements on a road segment during the peak hour. The peak-hour volume on urban arterials typically is about 10 percent of the AADT (Transportation Research Board, 1985). These values are useful indicators in determining the

extent to which the roadway segment is used and in assessing the potential for congestion and other problems.

The performance of a roadway segment is generally expressed in terms of level of service (LOS). The LOS scale ranges from A to F with each level defined by a range of volume-to-capacity ratios. LOS A, B, and C are considered good operating conditions where minor or tolerable delays are experienced by motorists. LOS D represents below-average conditions. LOS E corresponds to the maximum capacity of the roadway. LOS F represents a jammed situation. Table 3.2-3 presents the LOS designations and their associated volume/capacity ratios. These levels are based primarily on the Highway Capacity Manual (HCM) and are adjusted for local conditions (Transportation Research Board, 1985).

**Table 3.2-3. Road Transportation Levels of Service**

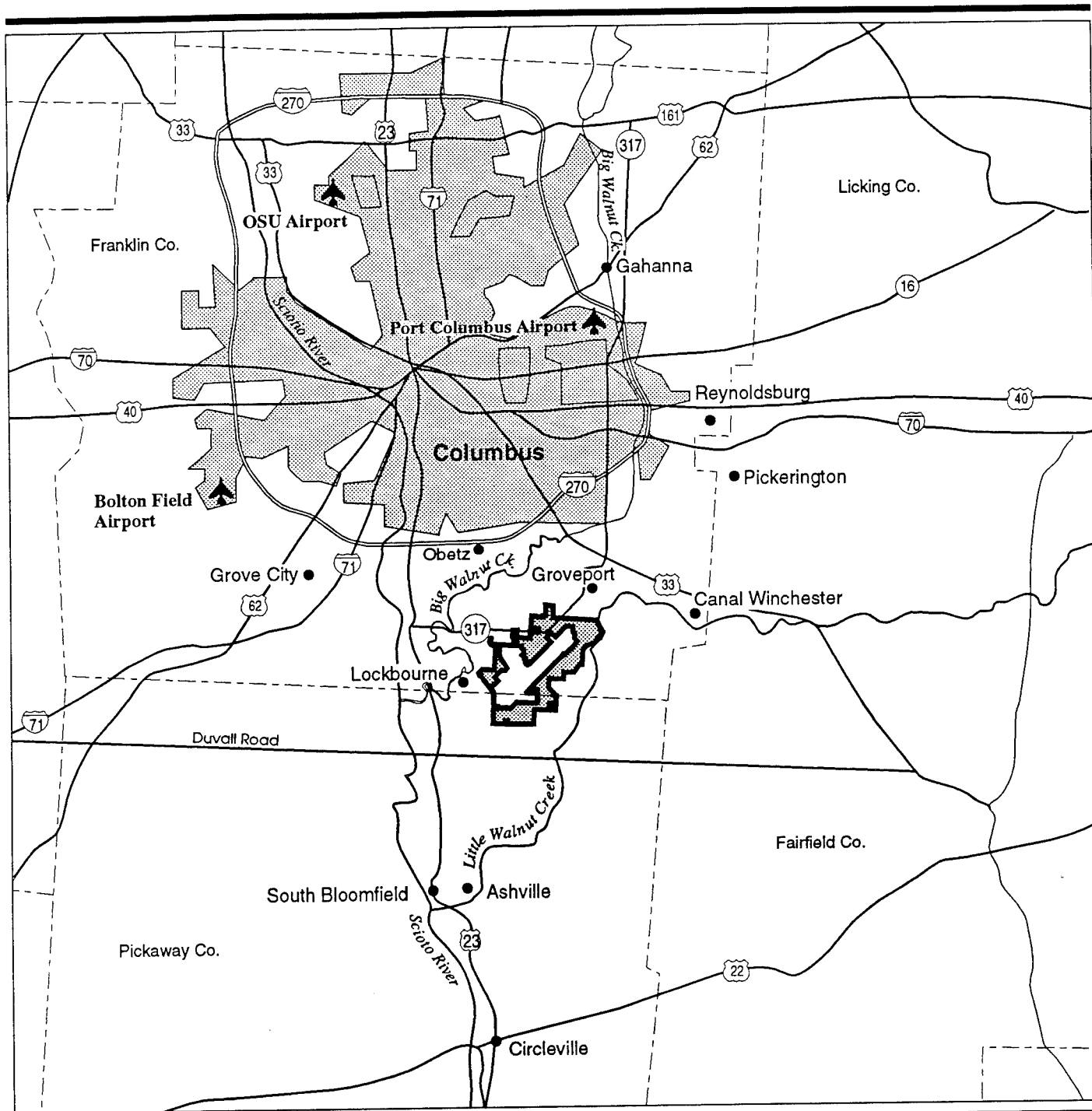
LOS	Description	Criteria (Volume/Capacity)		
		Freeway	Multi-lane Arterial	Two-Lane Arterial
A	Free flow with users unaffected by presence of other users of roadway.	0-0.35	0-0.33	0-0.15
B	Stable flow, but presence of the users in traffic stream becomes noticeable.	0.36-0.54	0.34-0.55	0.16-0.27
C	Stable flow, but operation of single users becomes affected by interactions with others in traffic stream.	0.55-0.77	0.56-0.75	0.28-0.43
D	High density, but stable flow; speed and freedom of movement are severely restricted; poor levels of comfort and convenience.	0.78-0.93	0.76-0.89	0.xx-0.64
E	Unstable flow; operating conditions at capacity with reduced speeds, maneuvering difficulty, and extremely poor levels of comfort and convenience.	0.94-1.00	0.90-1.00	0.65-1.00
F	Forced or breakdown flow with traffic demand exceeding capacity; unstable stop-and-go traffic.	>1.00	>1.00	>1.00

Source: Transportation Research Board, 1985.

Existing roads and highways within the ROI are described at three levels: (1) regional, representing the major links within Franklin and Pickaway counties; (2) local, representing key community roads; and (3) on-base roads.

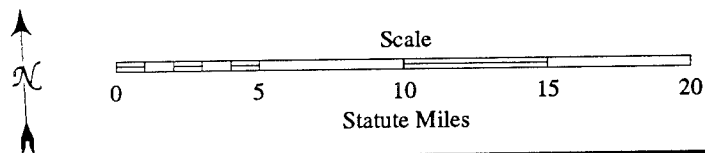
**Regional.** Rickenbacker ANGB is served by two regional interstate highways (Figure 3.2-7). Interstate 71, located west of the base, runs in a north-south direction, and connects Columbus to Cleveland to the north and Cincinnati to the south. Interstate 70 runs east-west through Columbus, and provides regional access to Pennsylvania to the east and Indiana to the west. Columbus's beltway, Interstate 270, located just north of the base, connects all the interstates in the region.

**Local.** Figure 3.2-8 identifies the general local road network now in place and projected to be in place in the immediate vicinity of Rickenbacker ANGB at the



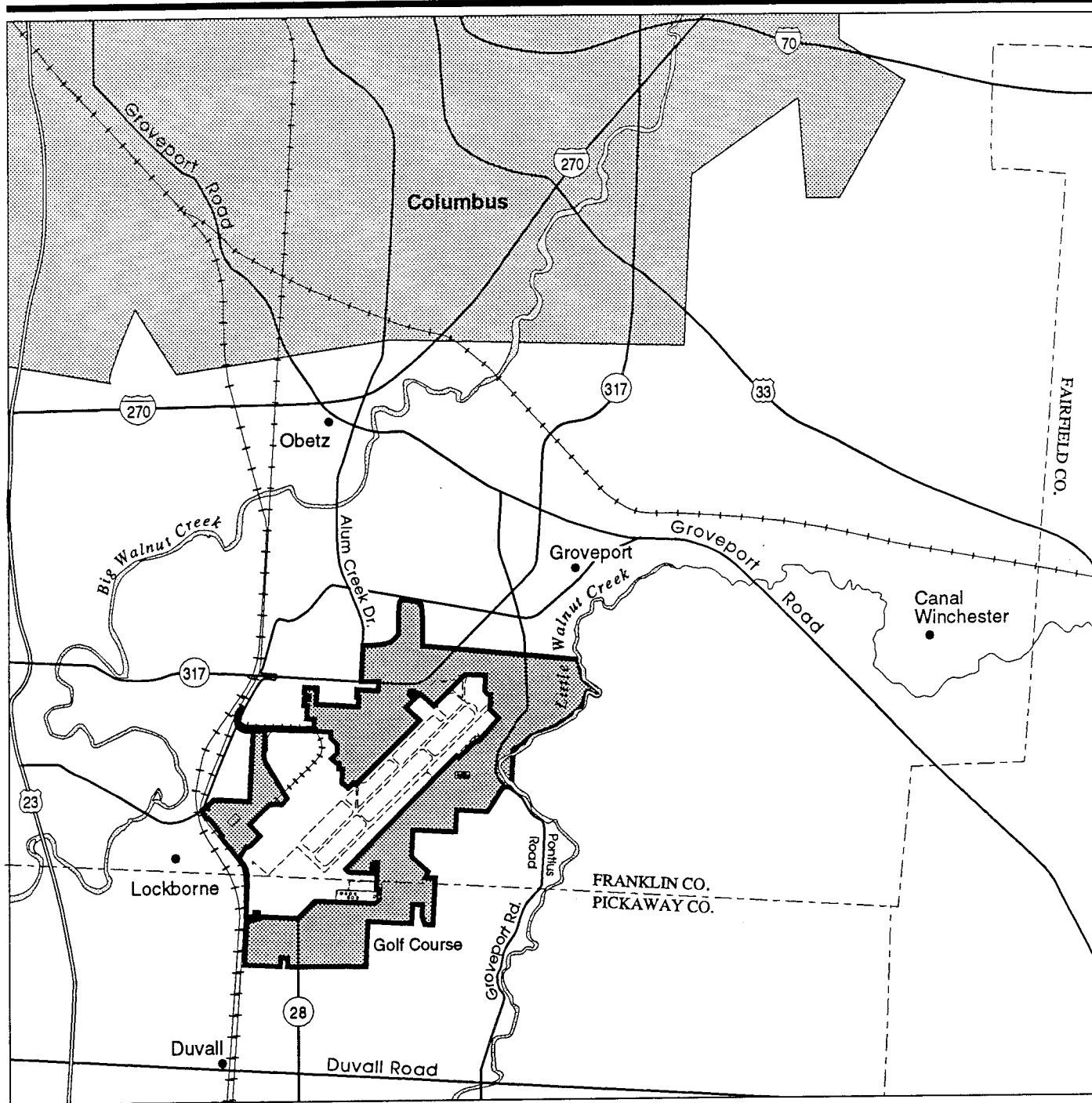
#### EXPLANATION

- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus
- Major Airport



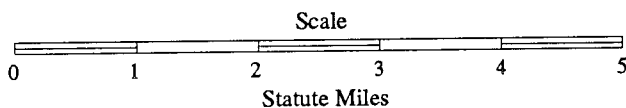
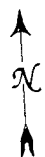
#### Regional Transportation System

Figure 3.2-7



#### EXPLANATION

- Rickenbacker ANGB Base Boundary
- - - Rickenbacker Port Authority Boundary
- City of Columbus
- + + + + Existing Rail Spur



#### Local Transportation System

Figure 3.2-8



time of base realignment. Access to Rickenbacker ANGB is gained through the Main Gate, which opens onto SR 317.

SR-317 is a divided four-lane road from its junction with I-70 south to its intersection with Groveport Road (except for a short stretch from Big Walnut Creek south to the U.S. Highway 33 interchange, which is still two-lanes). The distance along this route, from the base to I-70, is about 9 miles. Speed limits vary between Hendron and Groveport with the maximum being 55 miles per hour (MPH). The AADT along this route varies from a high of 8,200 near Alum Creek to a low of 3,900 near U.S. 23 and Groveport Road.

Alum Creek Drive, another major collector, is a four-lane divided highway between the base and the I-270 outer beltway. The distance from the base to I-270 is about 3 miles. The AADT is approximately 18,000 between Groveport and I-220 and 6,800 in the vicinity of the base.

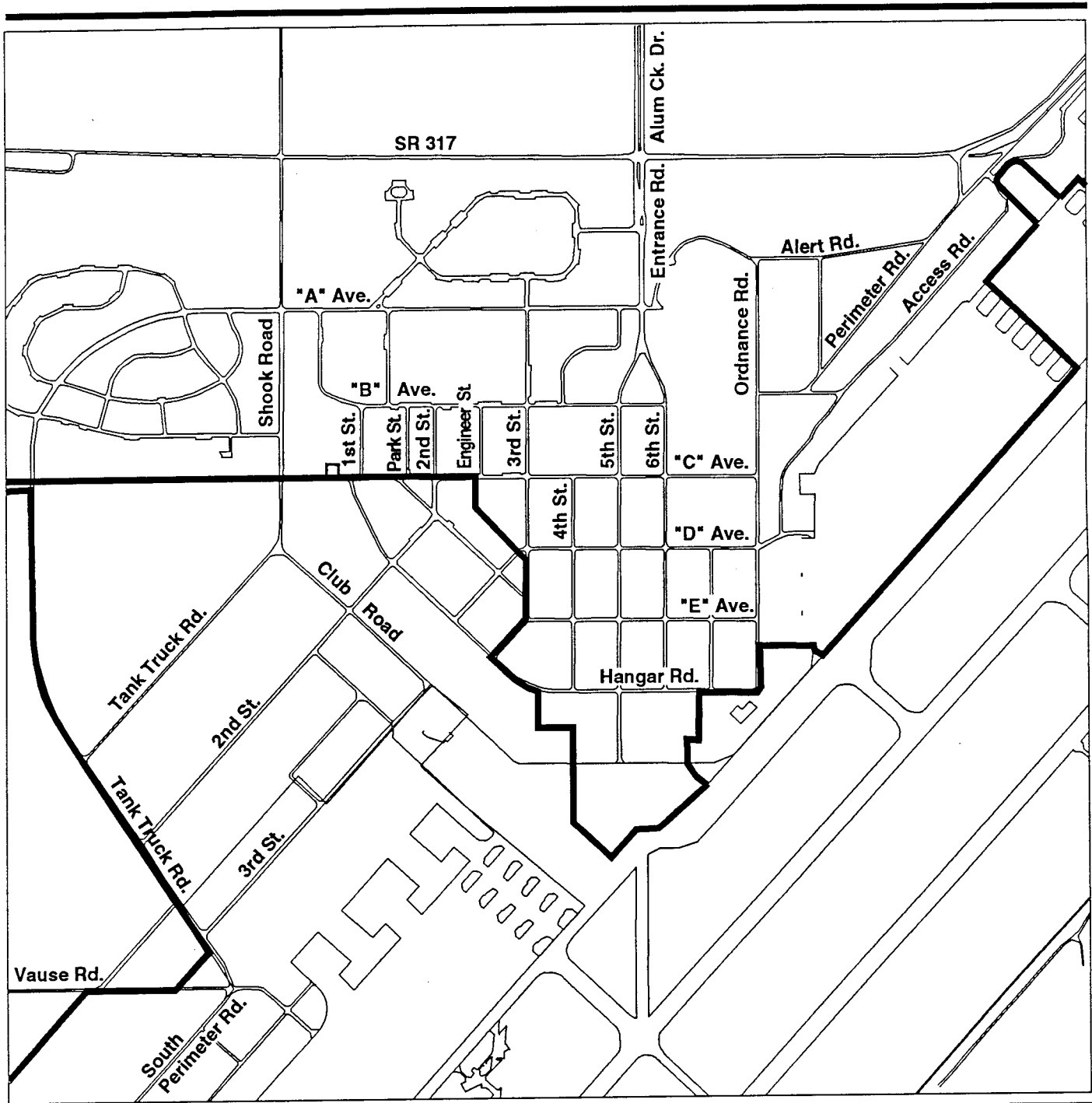
Groveport Road is a two-lane road with an AADT of approximately 8,900 near I-221 and 5,700 near SR-317. Lockborne Road is a two-lane road with an AADT of 2,000 near SR-317. Parsons Road is a two-lane road with an AADT of 1,300 near SR-317. U.S. 23 is a four-lane divided highway with an AADT of approximately 20,000 near SR-317.

**On-Base.** Figure 3.2-9 shows the street network on the base. Curtis LeMay Avenue is the main entrance point. It is a two-lane road that intersects with 5th and 6th Streets. Other significant on-base roads include "A" Avenue and "C" Avenue. All roads are generally two lanes.

**Roadway Improvements.** Currently, the RPA is working ODOT on rerouting SR-317 through the airport to provide convenient access to warehousing development at the airport. An exact alignment has not been selected, and it is possible that widening of the existing alignment will be implemented. In addition, it is possible that new construction could begin by the year 1999. For purposes of this analysis, it was assumed that widening of SR-317 would be the preferred option and implementation of this option would be accomplished by 2004. It is further assumed that appropriate intersection improvements will be made as part of this improvement.

A portion of Alum Creek Drive from SR-317 to its end point at the Base Operations building (Building 500) on the RPA property is being widened to four lanes. Also, Curtis LeMay Avenue on RPA property is being widened between SR-317 and Alum Creek Drive. Industrial development at the airfield would necessitate some roadway upgrading to cope with large truck traffic.

**Pre-Realignment Reference.** Daily traffic volume data for the study area roadway network were obtained from MORPC covering the pre-realignment time period. Capacity analyses were conducted on the surrounding roadways based on these traffic volumes as well as roadway geometric characteristics. The pre-realignment (1989) peak hour traffic volumes, capacities, and LOS on key community roadways are shown in Table 3.2-4.



# EXPLANATION

Rickenbacker Air National Guard Base Boundary

## Key On-Base Roads

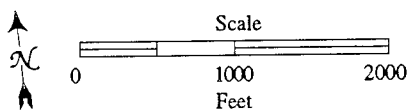


Figure 3.2-9

Table 3.2-4. Levels of Service

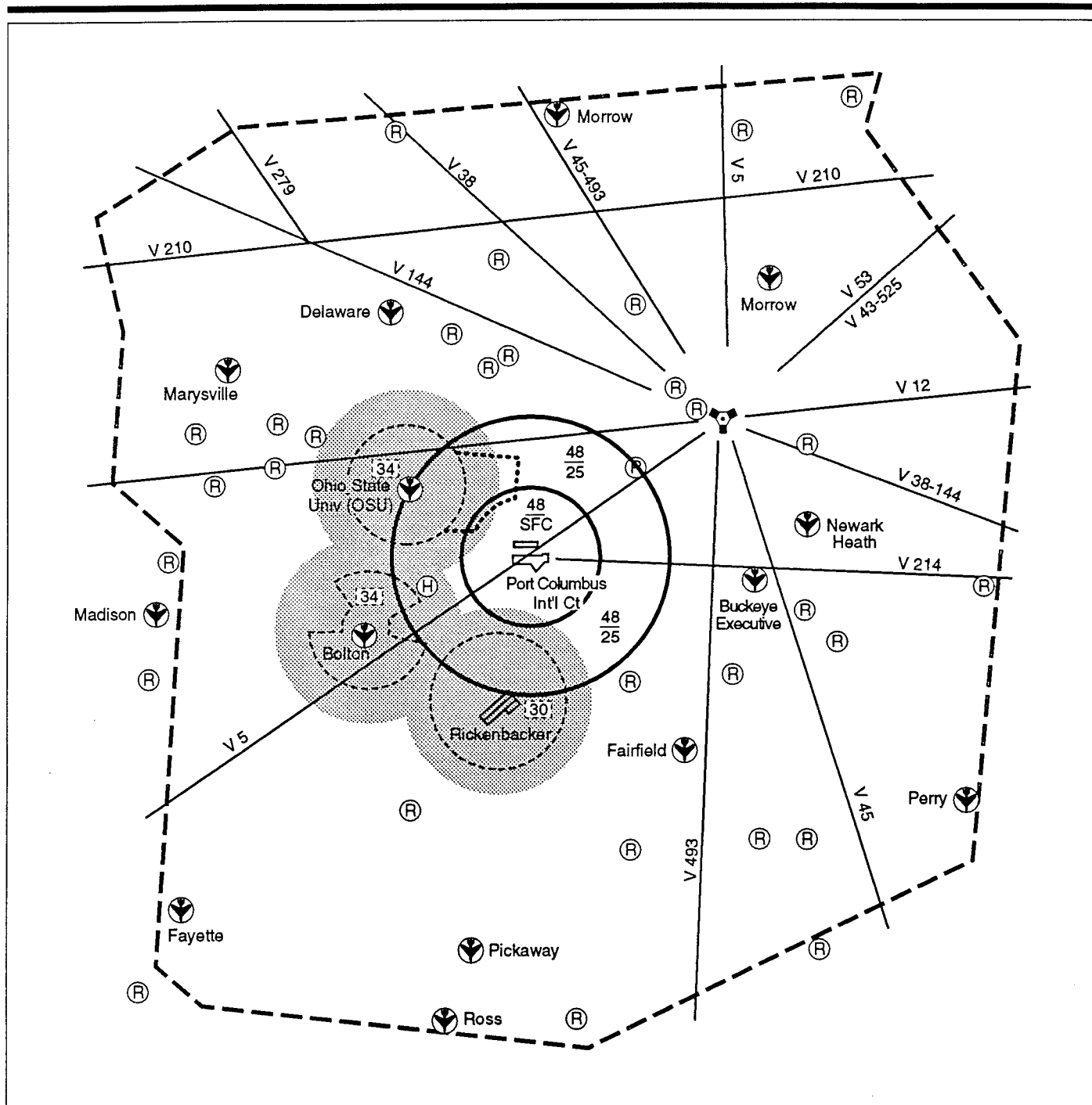
Roadway	Segment	Pre-Realignment (1989)			Realignment (1994)		
		Capacity	Peak Hour Volume	LOS	Peak Hour Volume	LOS	
Alum Creek	Rickenbacker ANGB to Rohr	3,400	365	A	308	A	
Alum Creek	Rohr to Groveport	3,400	372	A	315	A	
Alum Creek	Groveport to I-270	3,400	991	A	1,047	A	
Groveport	I-270 to Alum Creek	2,587	891	C	939	C	
Groveport	Alum Creek to Pontius	2,587	609	B	627	B	
Groveport	Pontius to SR-317	2,587	569	B	618	B	
Groveport	East of SR-317	2,587	431	B	419	B	
Lockbourne	SR-317 to Rohr	2,587	191	A	202	A	
Lockbourne	Rohr to Rathmell	2,587	347	A	374	A	
Lockbourne	Rathmell to I-270	2,587	61	A	59	A	
Parsons	SR-317 to Rathmell	2,587	123	A	127	A	
Parsons	Rathmell to I-270	2,587	226	A	241	A	
SR-317	Hendron to Groveport	3,826	232	A	232	A	
SR-317	Groveport to Rohr	2,587	391	B	318	A	
SR-317	Rohr to Alum Creek	2,587	820	C	781	C	
SR-317	Alum Creek to Shook	2,587	867	C	904	C	
SR-317	Shook to Parsons	2,587	601	B	621	B	
SR-317	Parsons to U.S.-23	2,587	391	B	407	B	
U.S.-23	County Line to SR-317	3,826	1,510	B	1,662	B	
U.S.-23	SR-317 to I-270	3,826	1,465	B	1,612	B	
I-270	West of U.S.-23	4,251	2,372	C	2,618	C	
I-270	U.S.-23 to Alum Creek	6,376	1,994	A	2,181	A	
I-270	Alum Creek to U.S.-33	6,376	1,907	A	2,085	A	

1       **Realignment Baseline.** Estimates of baseline (1994) traffic volumes were  
2 derived from pre-realignment reference data combined with estimates of  
3 anticipated employment loss resulting from base realignment. The realignment  
4 baseline peak hour volumes and LOS on key community roadways are shown in  
5 Table 3.2-4. Traffic on on-base roads will be reduced, when compared to pre-  
6 realignment conditions. At realignment, base use is estimated to generate 2,020  
7 daily vehicular trips.

8       **3.2.3.2 Airspace/Air Traffic.** Airspace is a finite resource that can be defined  
9 vertically and horizontally, as well as temporally, when describing its use for  
10 aviation purposes. As such, airspace must be managed and utilized in a manner  
11 that best serves the competing needs of commercial, general, and military  
12 aviation interests. The FAA is responsible for the overall management of  
13 airspace and has established different airspace designations to protect aircraft  
14 while operating to or from an airport, transiting the enroute system, or operating  
15 within "special use" areas identified for defense-related purposes. Rules of flight  
16 and ATC procedures have been established that govern how aircraft must  
17 operate within each type of designated airspace. All aircraft operate under either  
18 IFR, which puts them under full control of the ATC system, or visual flight rules  
19 (VFR), which normally does not require air traffic control.

20       The type and dimension of individual airspace areas established within a given  
21 region, and their spatial and procedural relationship to one another, are  
22 contingent upon the different aviation activities conducted in that region. When  
23 any significant change is planned for this region (such as airport expansion, a  
24 new military flight mission, etc.), the FAA will reassess the airspace configuration  
25 to determine if such changes will adversely affect (1) ATC systems and/or  
26 facilities; (2) movement of other air traffic in the area; or (3) airspace already  
27 designated and used for other purposes (i.e., Military Operations Areas [MOAs]  
28 or restricted areas).

29       The ROI considered for the Rickenbacker ANGB analysis consists of the  
30 approach control area outlined in Figure 3.2-10, which generally contains the  
31 maneuvering airspace used by the FAA for all arriving and departing air traffic in  
32 the Columbus vicinity. This designated airspace, referred to as an approach  
33 control area, extends from the surface up to 10,000 feet MSL and has been  
34 specifically delegated to the TRACON facility at Columbus for the control of all  
35 air traffic within this area. The key airports within this area include Rickenbacker  
36 ANGB, Port Columbus International Airport, Bolton Field, and Ohio State  
37 University Airport. There are also some other small public and private use  
38 airports within this ROI; however, they have relatively few aircraft operations and  
39 do not adversely affect the key airports. Airspace above 10,000 feet MSL is  
40 controlled by the FAA Indianapolis ARTCC for overflights and integration of  
41 Columbus Approach Control Area traffic into the enroute system. Air traffic in  
42 this upper airspace is not normally affected by airport air traffic flows in the ROI.



## EXPLANATION

- Region of Influence
- Class "C" Airspace
- Class "E" Airspace - Surface to 3,400 MSL
- Class "E" Airspace (with floor 700 feet above surface)
- Class "D" Airspace
- $\frac{48}{25}$  Class "C" Ceiling/Floor Altitudes MSL (hundreds of feet)
- $\frac{30}{}$  Surface to Ceiling (altitude MSL) (hundreds of feet)

- V 35 Federal Airway
- Airport
- Private Airport
- Heliport
- Vortac

## Airspace Region of Influence Rickenbacker ANGB

Figure 3.2-10

**Pre-Realignment Reference.** An understanding of the ROI airspace/air traffic environment and its use under the pre-realignment reference is necessary to help determine its capability and capacity to assimilate future aviation activities into the overall National Airspace System. The same constraints and considerations, such as runway alignments and other air traffic flows, would apply under future alternative aviation reuses of Rickenbacker ANGB.

Airspace designated for ATC purposes at Rickenbacker ANGB and the surrounding area consists primarily of Class C, D, and E airspace, which are all shown in Figure 3.2-10. While these respective areas appear to overlap, each one basically serves a specific purpose in regard to which ATC services and rules of flight must be followed by pilots under different weather and air traffic conditions. Because of the cumulative number of aircraft operations that can be generated by all the airports and other aircraft transiting through this area, Class C airspace is established around the Port Columbus International Airport to enhance flight safety and awareness. The Class C designation is published on aeronautical charts to alert all pilots that they must be in radio contact with the Columbus TRACON when flying within the depicted lateral boundaries and altitude limits of this Class C airspace. This area helps ensure that all aircraft operating at Port Columbus and nearby Rickenbacker ANGB are monitored by ATC radar. Federal airways, which are also shown in Figure 3.2-10, track through and over the ROI and do not normally affect (nor are they adversely affected by) Rickenbacker ANGB aircraft operations. The airspace immediately east of Rickenbacker ANGB is virtually clear of federal airways or jet routes, military special use airspace or military training routes, other ATC systems and/or facilities, and other published flight tracks for a range of approximately 20 nautical miles.

The Columbus TRACON provides ATC services to all IFR aircraft, as well as those VFR aircraft requesting radar services, when approaching or departing Rickenbacker ANGB and the surrounding airports.

The Rickenbacker ANGB control tower, a contract operation, provides control over the base's local traffic patterns, as well as other air traffic passing through the surrounding Class D designated airspace. Contained within a 5-statutory-mile radius, this airspace encircles Rickenbacker ANGB from the surface to 3,000 feet MSL. However, the northern portion of this airspace block receives precedent control by Columbus TRACON from 2,500 feet MSL to 4,800 feet MSL.

Navigational aid capabilities at Rickenbacker ANGB include an instrument landing system (ILS) and a tactical air navigation (TACAN) system for runway 5R/23L and 5L/23R approaches. While the ILS is compatible with both military and civil aircraft navigation equipment, the TACAN is normally compatible with military aircraft instrumentation only. Appropriately equipped civil aircraft may use the Appleton or Yellow Bud, very high frequency, omni-directional range (VOR) for navigational guidance to the base on Runway 5 and Runway 23 final approach path for the ILS at Rickenbacker ANGB. Instrument approach procedures for the military aircraft are, therefore, supported by the ILS and

TACAN. While civil aircraft utilize the ILS and VOR, all properly equipped aircraft may use Columbus TRACON for radar vectoring, or guidance, to the final approach path for either runway. Both civil and military aircraft maintain specified heading and altitude on instrument departure from either runway until they are contacted by Columbus Departure Control and issued further instructions.

The traffic patterns, instrument approaches (Figure 3.2-11), and departure procedures (Figure 3.2-12) used at Rickenbacker ANGB under pre-realignment conditions represent the airspace requirements for IFR aircraft operating at the base and those aircraft in transit between the base and the enroute airspace system (Rickenbacker ANGB Regulation 55-3). Air traffic patterns for Rickenbacker ANGB are flown east of the base to keep aircraft well-separated from the Port Columbus patterns and comply with noise abatement procedures. While no real traffic conflicts exist, more care has to be exercised when Port Columbus is landing to the west (Runway 28) and Rickenbacker ANGB is landing to the southwest (Runway 23). This situation occurs nearly half the time because of wind conditions, but the distance between the two airfields precludes any significant air traffic conflicts.

A total of 64,200 aircraft operations were conducted at Rickenbacker ANGB in 1991. These operations, which reflect individual takeoffs and landings, were conducted primarily by military, commercial air cargo, and general aviation aircraft. Table 3.2-5 provides a breakout of the number of operations that were conducted by aircraft in each of these categories. Approximately 212,800 aircraft operations were conducted at Port Columbus during 1991. Table 3.2-6 indicates the number of operations that were conducted at the other primary airports in the ROI.

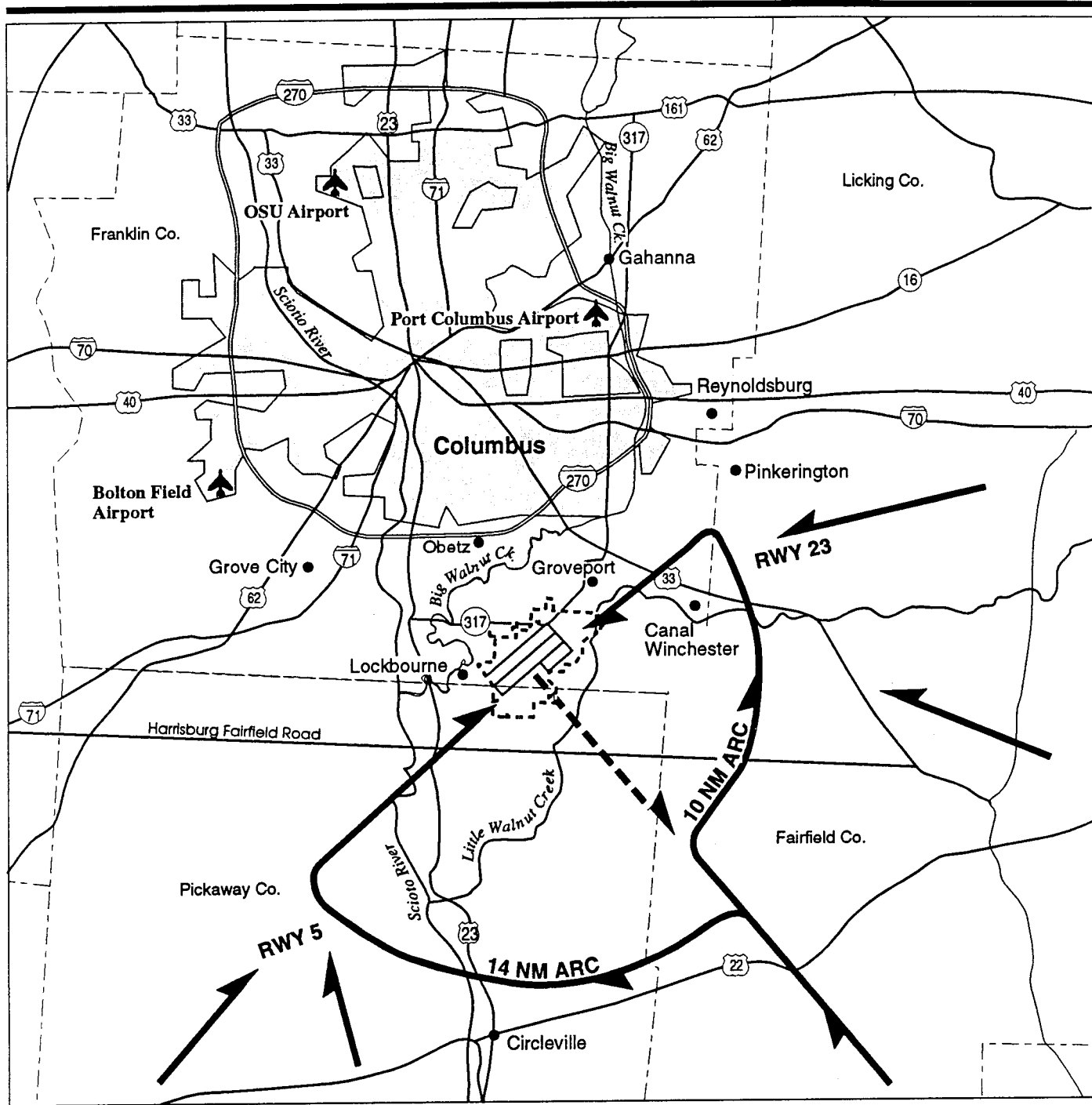
**Table 3.2-5. Rickenbacker ANGB 1991 Aircraft Operations**

Type	Aircraft Operations <sup>(a)</sup>		
	Day	Night <sup>(b)</sup>	Total
Military	47,157	42	47,199
Air Cargo	11,752	892	12,647
General Aviation	4,103	266	4,369
<b>Total</b>	<b>63,012</b>	<b>1,200</b>	<b>64,215</b>

Notes: <sup>(a)</sup> An aircraft operation is one takeoff or one landing.

<sup>(b)</sup> Night is between the hours of 10:00 P.M. and 7:00 A.M.

Source: Rickenbacker ANGB 1991 Air Traffic Summary Reports.



#### EXPLANATION

- Rickenbacker Air National Guard Base Boundary
- - - Rickenbacker Port Authority Land

#### Primary IFR Arriving Aircraft Flight Paths

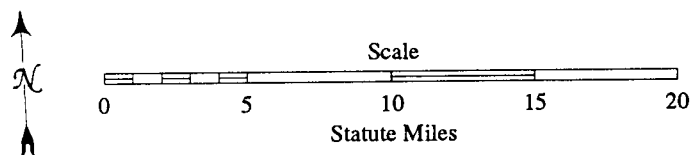
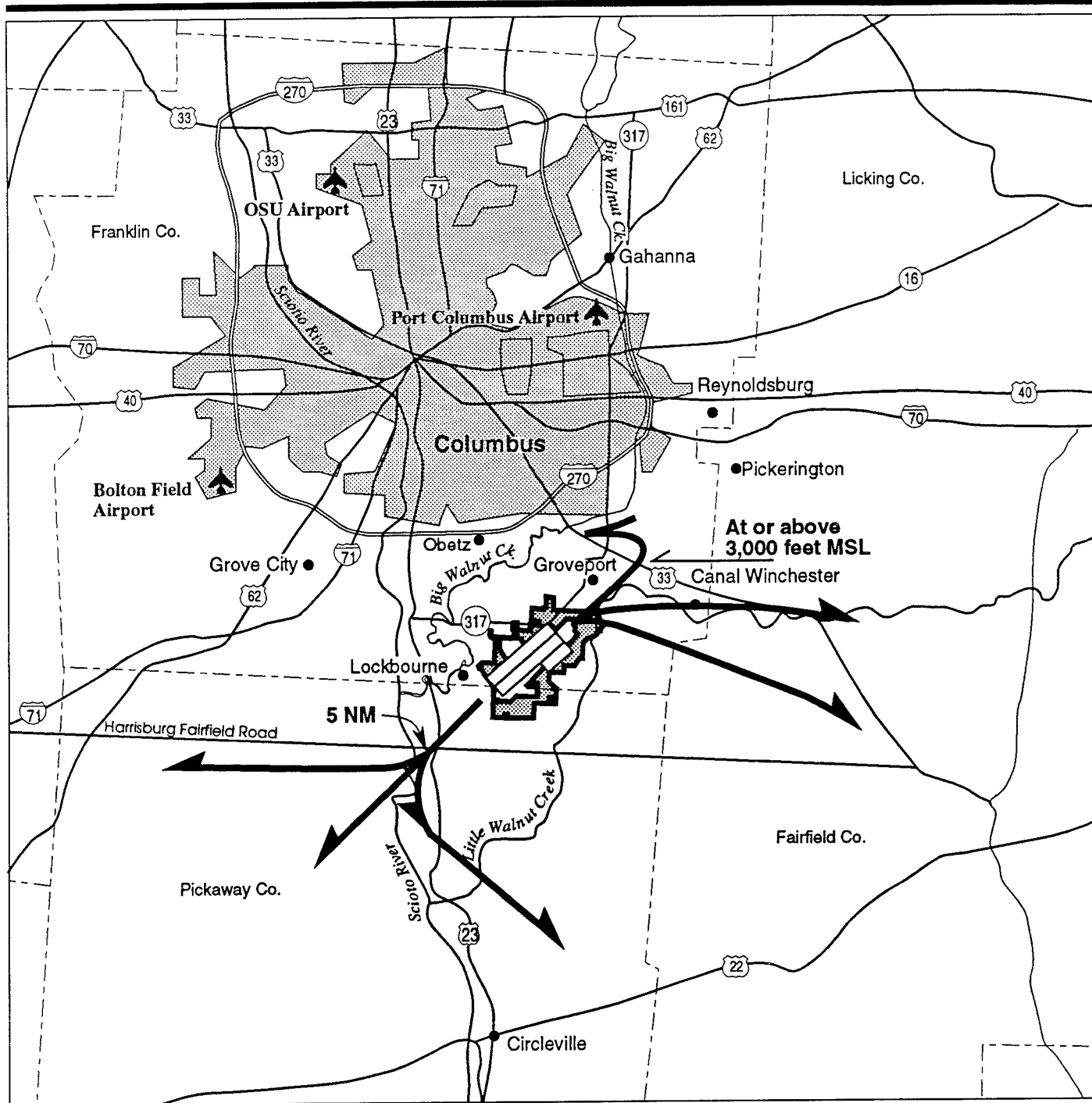


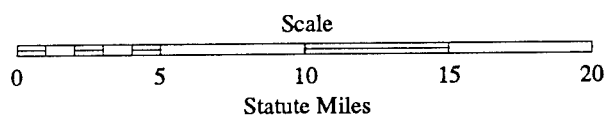
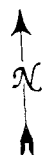
Figure 3.2-11





#### EXPLANATION

- Rickenbacker Air-National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus
- Major Airport



#### Primary IFR Departing Aircraft Flight Paths

**Figure 3.2-12**

Table 3.2-6. Historic Airport Operations

Airport	1985	1990	1992
Port Columbus	97,072	116,769	230,655
OSU	161,560	133,088	124,823
Bolton Field	70,000	73,584	70,468

Source: Port Columbus Reliever Airport Study and FAA Activity Reports.

**Realignment Baseline.** Assuming that airfield operations at Rickenbacker ANGB will be somewhat reduced relative to the pre-realignment baseline (see Section 2.0), the surrounding airspace environment would not change significantly. Instrument procedures and designated ATC airspace areas (Class C, D, and E) would remain in place to protect and control aircraft operations while enhancing the safety of the airborne and surface communities. Operations facilities, such as the control tower, navigational aids, and other communications equipment, would be retained.

The Class C airspace would remain under the control of the Columbus TRACON. Class D airspace will still be designated around the airfield as long as an operational tower is in place. Existing arrival and departure routes and local traffic patterns would continue to serve those using the airfield as a transit facility or permanent location.

**3.2.3.3 Air Transportation.** Air transportation includes passenger travel by commercial airline and charter flights, business and recreational travel by private and corporate interests (general aviation), and air cargo or air freight delivery by commercial air transport, and air carriers.

Public airports located in the Columbus area include the Port Columbus International Airport, Bolton Field Airport, and Ohio State University (OSU) Airport. Other smaller public or private airports in the ROI include South Columbus, Columbus Southwest, Darby Dan, Montoney, and an ODOT heliport. None of these smaller airfields were considered in this study, since they have relatively few aircraft operations and no commercial air transportation services.

The Port Columbus International Airport is the only airport providing air passenger service within the Columbus area. Nine major air carrier airlines currently operate at this airport, providing direct or connecting service to over 50 cities. Approximately 1.8 million passenger enplanements have been recorded annually over the past several years, with a sizable increase occurring in 1992, as shown in Table 3.2-7. Forecasts indicate that passenger enplanements are projected to increase nearly 100 percent by the year 2010.

**Table 3.2-7. Port Columbus International Airport Historic Passenger and Air Cargo/Freight Activities**

Activity	1987	1988	1980	1990	1991	1992
Passenger Enplanements	1,827,783	1,874,619	1,795,641	1,831,824	1,716,176	2,199,270
Air Cargo (lbs) <sup>(a)</sup>	9,387,957	9,597,981	11,874,776	13,222,888	13,021,967	19,862,836
Air Freight (lbs) <sup>(b)</sup>	14,701,830	17,770,756	9,501,842	11,488,526	37,773,561	46,631,414

Notes: <sup>(a)</sup> Includes passenger baggage and other cargo transported on scheduled air passenger carriers.

<sup>(b)</sup> Includes shipments transported on all cargo carriers.

Some air cargo is transported as belly cargo on scheduled air carriers. Table 3.2-8 shows the amount of air cargo handled; however, this total includes passenger baggage. Currently, there are 10 different air freight carriers operating at Port Columbus, including Airborne, Air Transport International, American International, Arrow Air, Emery Worldwide, Federal Express, Northwest, Southern, UPS, and World Airways. In May 1992, Evergreen relocated their operations to Rickenbacker ANGB. The total amount of air freight that has been transported through Port Columbus since 1987 is shown in Table 3.2-8.

The only other type of aviation activity conducted at Port Columbus is general aviation which includes private or corporate owned aircraft. About 175 such aircraft are based at Port Columbus and they have accounted for over 100,000 operations (takeoffs and landings) annually during recent years. This is a decline over previous years (1984-1989) when there were as many as 196 based aircraft and over 135,000 annual operations. The total number of operations conducted by general aviation, air carrier, and transient military aircraft at Port Columbus in 1992 was 230,655. As shown in Table 3.2-8, airport operations are forecast to increase nearly 32 percent by the year 2010.

**Table 3.2-8. Forecast Aircraft Operations**

Airport	1995	2000	2010
Port Columbus	257,070	275,490	305,300
Ohio State University	172,544	194,144	239,832
Bolton Field	82,880	94,360	118,160

Source: FAA Activity Report and the Port Columbus Reliever Airport Study.

Port Columbus has two parallel runways (6,000 and 10,250 feet in length) with ILS capability to three of the four runway approaches. There is also a shorter intersecting runway (3,908 feet) that is used by most general aviation aircraft.

The OSU Airport is located approximately 10 miles northwest of Port Columbus, which is a key general aviation airport in the region. It has four runways (two parallel and two intersecting) with instrument approach capabilities to both ends of its longest runway (5,002 feet). Student flight instruction associated with OSU accounts for about 50 percent of the airport's operations. State agencies, including the Highway Patrol, Department of Natural Resources, and Division of Aviation, operate 30 based aircraft at the OSU Airport. There is also a large number of corporate, and other privately owned aircraft, based at the airport due to high aircraft ownership in the northwest quadrant of the city.

In total, there are about 250 private and corporately owned aircraft based at the OSU Airport. The Army National Guard relocated its helicopter operations to Rickenbacker ANGB, although military aircraft continue to operate at OSU on occasion when transporting Armory personnel.

OSU Airport operations were about 125,000 in 1992, which is a decline from past levels as high as 206,000. As shown in Table 3.2-9, airport operations are forecast to increase to nearly 240,000 operations by the year 2010. Future airport development includes plans to extend one of the parallel runways and the intersecting runways. There is sufficient space on the airport to add more hangars as needed to support future requirements.

The Bolton Field Airport is located approximately 15 miles west of the Port Columbus International Airport and is another relatively active general aviation airport in the ROI. It has one 5,200 foot runway with instrument approach capability. General aviation activities at this airport include privately owned or corporate aircraft operations, flight instruction, sightseeing, and one chartered air taxi service (Corporate Wings). There are currently 88 general aviation and air taxi aircraft based at the airport. A total of 50,616 operations were conducted in 1992 and, as shown in Table 3.2-9, airport operations are projected to increase to 118,000 by the year 2010. Thirty new T-hangers recently have been added at Bolton Field and there are plans to add 30 more in the near future. There are also plans to add a new 3,200-foot crosswind runway in 1994.

**3.2.3.4 Other Transportation Modes.** The Norfolk & Southern and Chesapeake & Ohio (CSX) railroad companies own and operate parallel rail lines located west of Rickenbacker ANGB. Both lines are used for cargo hauling and provide no passenger services. The nearest access to passenger railway accommodations is in Cincinnati at a major hub operated by AMTRAK. The rail spur providing access to the base can be reached from the line operated by Norfolk & Southern. However, the spur is no longer utilized and would require extensive upgrades before being used in the future.

#### **3.2.4 Utilities**

The utility systems addressed in this analysis include the facilities and infrastructure used for:

- potable water pumping, treatment, storage, and distribution;

- wastewater collection and treatment;
- solid waste collection and disposal; and
- energy generation and distribution, including the provision of electricity and natural gas.

The ROI for utilities is made up of the service areas of each utility provider servicing the base and local community. The major attributes of utility systems in the ROI are processing, distribution, storage capacities, average daily consumption, peak demand, and related factors required in making a determination of adequacy of such systems to provide services in the future.

Data regarding utility systems within the ROI were provided by the utility providers servicing the ROI and responsible government agencies (personal communications, Clauss, 1994; Holiday, 1994; Honsey, 1994; Hubbard, 1994; Montel, 1994; and Shockley, 1994). Utility consumption at realignment (September 1994) was projected based on an average annual growth rate of 0.8 percent, derived from historic growth rate figures provided by the utility providers.

#### 3.2.4.1 Water Supply.

**On Base.** In 1993, the base was connected to a new water main installed by Franklin County along Alum Creek Road. A 16-inch water line extends from the new main to the existing base system. The County purchases and distributes water from the City of Columbus to the base and unincorporated portions of Franklin County. Domestic water storage capacity at the base consists of a 0.5 million-gallon (MG) elevated tank. Base water consumption is estimated to average 0.17 MGD in 1993.

**Off Base.** The City of Columbus provides water to approximately 870,000 residents in 23 communities in the metropolitan area, including unincorporated portions of Franklin County. The Village of Lockbourne and newly developed areas of the Village of Groveport are supplied water from the City of Columbus. The city obtains its water from the Scioto River, Alum Creek, Big Walnut Creek, and the South Well Field. Three water treatment plants, Dublin Road, Hap Cremean, and Parsons Avenue, have a total capacity of 137 million gallons per day (MGD).

The Village of Groveport obtains water from two groundwater wells at depths of 60 and 90 feet with a total pumping capacity of approximately 0.90 MGD. Water treatment consists of aeration, iron filter, and softening. Groveport's water storage system has a capacity of 300,000 gallons, consisting of two elevated tanks of 200,000 gallons and 100,000 gallons.

On three different occasions, the base has tested the drinking water for lead in accordance with Air Force Regulation 161-44 and Ohio EPA requirements. Test results have ranged from less than 5.0  $\mu\text{g}/\text{m}^3$  to 132.0  $\mu\text{g}/\text{m}^3$ . The maximum contaminant level (MCL) for lead in drinking water is 50  $\mu\text{g}/\text{m}^3$ . One high

reading resulted from the testing of Halsey Taylor drinking fountains. The base removed the fountain with the high reading from Building 1000.

**Pre-Realignment Reference.** Average daily potable water consumption in the ROI is presented in Table 3.2-9. The average daily water use for the base is approximated at 0.13 percent of the potable water consumed in the ROI.

**Table 3.2-9. Estimated Daily Utility Consumption in the ROI**

	1991 (Pre-Realignment Ref.)	1992	1993	1994 (Realignment)
Water Consumption (MGD)	130.6	129.3	130.3	131.34
Wastewater Treatment (MGD)	154.1	152.29	153.4	154.63
Solid Waste Disposal (tons/day)	2,449	2,499	2,550	2,570
Electrical Consumption (MWH/day)	2,948	3,009	3,070	3,090
Natural Gas Consumption (MMCF/day)	1.15	1.26	1.32	1.34

ROI = region of influence.  
MGD = million gallons per day.  
MWH = megawatt hours.  
MMCF = million cubic feet per day.

**Realignment Baseline.** Potable water consumption in the ROI is projected to be 131.34 MGD in 1994. Demand from continuing operations at the base will be approximately 0.17 MGD.

#### 3.2.4.2 Wastewater.

**On Base.** Wastewater generated at Rickenbacker ANGB is collected and pumped off base to the City of Columbus's wastewater treatment system in accordance with the wastewater discharge permit issued by the city. The base is billed for all wastewater flows from the National Guard, Navy, the former base housing areas, and RPA facilities. The base estimates wastewater flows by subtracting out all off-base consumers and paying the remainder. Base wastewater flows for 1993 are estimated at 0.27 MGD.

**Off Base.** The City of Columbus provides wastewater treatment for 926,000 persons in 21 communities in the metropolitan area. The city operates two wastewater treatment facilities with a total capacity of 174 MGD and a sludge composting facility. The Village of Lockbourne relies on individual septic systems for wastewater disposal.

**Pre-Realignment Reference.** Average daily wastewater treatment requirements in the ROI are presented in Table 3.2-9. The average daily wastewater flow for the base is approximately 0.43 percent of the total flow in the ROI.

**Realignment Baseline.** Wastewater treatment requirement in the ROI is projected to be 154.63 MGD in 1994. Demand from continuing operations at the base will be approximately 0.30 MGD.

#### 3.2.4.3 Solid Waste.

**On Base.** Solid waste collection and disposal are carried out by a private contractor in compliance with all applicable regulations. The contract costs approximately \$63,000 per year. Metals and lumber are collected and salvaged by the Defense Reutilization and Marketing Office (DRMO).

**Off Base.** The Solid Waste Authority of Central Ohio operates three transfer stations with shredders, a refuse-derived fuel incinerator and a landfill that serve the metropolitan area. The incinerator is processing 1,800 tons/day and has the capacity to process up to 3,000 tons/day. The landfill accepts noncombustible wastes and has a lifespan of 5 years. The design of an expansion a landfill expansion is underway and will extend the lifespan for an estimated 20 years. The authority also operates a regional compost facility that accepts yard wastes.

**Pre-Realignment Reference.** Table 3.2-9 presents the amount of solid waste disposed of in the ROI. Rickenbacker ANGB disposed of approximately 3.5 tons/day in 1991. This amount constituted approximately 0.14 percent of solid waste disposal in the ROI.

**Realignment Baseline.** Solid waste generation at realignment is projected to be 2.1 tons/day. Solid waste disposal in the ROI is projected to be 2,570 tons/day in 1994.

#### 3.2.4.4 Energy.

##### Electricity

**On Base.** Electricity is provided to the on-base substation from a 69-kilovolt primary distribution line owned by South Central Power, the local rural electric cooperative. South Central Power distributes electricity purchased from Buckeye Power Company, a generation and transmission cooperative. The substation hardware, owned by South Central Power, was recently upgraded to 28 megavolt-amperes (MVA) to meet the demand associated with new development in the immediate area. The substation is currently operating at approximately 40 percent of its capacity. South Central Power is developing plans for the expansion of this facility to handle future demands.

**Off Base.** Columbus Southern Power, one of eight operating companies of the American Electric Power system, serves the Columbus region. The system has a generating capacity of over 22 million kilowatts. The Columbus service district has over 460,000 customers.

**Pre-Realignment Reference.** Table 3.2-9 presents electrical consumption in the ROI. Rickenbacker ANGB consumed approximately 23.81 MWH/day in

1991. This constituted less than 0.01 percent of the electricity consumed in the ROI in 1991.

**Realignment Baseline.** Electrical consumption in the ROI is expected to be 3,090 MWH/day in 1994. Electrical consumption at Rickenbacker ANGB from continuing operations is projected to be approximately 19.07 MWH/day, about 74 percent of 1991 on-base consumption.

### Natural Gas

**On Base.** Natural gas is provided to the base by Columbia Gas of Ohio. The Rickenbacker ANGB gas system was installed in 1989, replacing the coal-fired central heating plant.

**Off Base.** Columbia Gas of Ohio provides natural gas to central Ohio and other states in the Midwest. In the Columbus region they provide natural gas service to 360,000 customers. The gas is distributed to the metropolitan area through a high-pressure system. Columbus Gas indicates that there is sufficient excess capacity available for growth at Rickenbacker ANGB (personal communication, Clapsaddle 1993).

**Pre-Realignment Reference.** Table 3.2-9 presents natural gas consumption in the ROI. Rickenbacker ANGB consumed approximately 0.36 MMCF/day in 1991. This amount constituted less than 0.31 percent of the natural gas consumed in the Groveport area in 1991.

**Realignment Baseline.** Natural gas consumption in the ROI is expected to be 1.45 MMCF/day in 1994. Natural gas consumption at Rickenbacker ANGB from continuing operations is projected to be about 55 percent of 1991 on-base consumption.

## 3.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Rickenbacker ANGB are governed by specific environmental regulations. For the purpose of the following analysis, the term hazardous waste or hazardous material will mean those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 United States Code (U.S.C) § 9601-9675, as amended, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901-6992, as amended. In general, this includes substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or the environment when released into the environment. The state regulations, which are at least as stringent as federal regulations, are outlined in the Ohio Revised Code (ORC) 3745.

Transportation of hazardous materials is regulated by USDOT regulations within Title 49 of the Code of Federal Regulations (CFR).



Treatment and disposal of nonhazardous waste, including wastewater, is discussed in Section 3.2.4, Utilities, as part of infrastructure support.

The ROI encompasses all geographic areas that are exposed to the possibility of a release of hazardous materials or hazardous wastes. The ROI for known contaminated sites is within the existing base boundaries. Specific geographic areas affected by past and current hazardous waste operations, including remediation activities, are presented in detail in the following sections.

The pre-realignment reference for the purposes of this analysis was established as of April 12, 1991. This date represents conditions of full mission operation prior to the initiation of drawdown activities.

### 3.3.1 Hazardous Materials Management

**Pre-Realignment Reference.** Hazardous materials most commonly utilized by Rickenbacker ANGB include aviation and motor fuels; numerous types of petroleum products such as motor oils, lubricants, and hydraulic-fluids; cleaning solvents and agents; pesticides and herbicides (see Section 3.3.6, Pesticide Usage); paints and paint thinners; acid, corrosives, caustics, glycols, compressed gases, aerosols, fire retardants, photographic chemicals; and munitions. These materials are delivered to base supply and from there are distributed to the work place in which they are utilized.

Rickenbacker ANGB has a Spill Prevention Control and Countermeasures (SPCC) Plan and a Base Spill Contingency Plan (BSCP) which designate the procedures to be followed in the event of a release of hazardous substances of any type or form. These plans identify the organizations, personnel, and equipment responsible for carrying out response functions (Ohio ANG, 1992a). The SPCC Plan is required under 40 CFR Part 112. Rickenbacker ANGB also follows Rickenbacker ANGB Regulation 19-4 (Ohio ANG, 1992b), which is the base Hazardous Waste Management Plan (HWMP) that establishes policies, assigns responsibilities, and provides guidance for proper management of hazardous wastes.

Material Safety Data Sheets (MSDS) for hazardous materials utilized on base can be obtained through the Environmental Management Office located in Building 863.

**Realignment Baseline.** After base realignment, only the operating location will be using hazardous materials. All parties will be responsible for managing these materials in accordance with federal, state, and local regulations to protect their employees from occupational exposure to hazardous materials and to protect the public health of the surrounding community.

The operating location will be responsible for the safe storage and handling of hazardous materials used in conjunction with all base maintenance operations, such as paint, paint thinner, solvents, corrosives, ignitables, pesticides, and miscellaneous wastes associated with vehicle and machinery maintenance

(motor oils/fuels). These materials will be delivered to the base in compliance with the Hazardous Materials Transportation Act (HMTA) under 49 CFR.

### 3.3.2 Hazardous Waste Management

**Pre-Realignment Reference.** Normal operations at Rickenbacker ANGB currently produce wastes defined as hazardous by RCRA, 40 CFR Part 261-265, and by ORC 3745.

Hazardous (RCRA) Waste generated by on-going Rickenbacker ANGB activity may accumulate at "satellite accumulation points" (Table 3.3-1) (located in and maintained by local shops) up to a summed total volume of 55 gallons of non-acutely hazardous (RCRA) waste. Subsequently, RCRA waste may be stored at building 905/908, not in excess of 90 days, prior to removal by a licensed contractor (private or DRMO) to a RCRA-permitted disposal facility (40 CFR parts 260-270).

**Table 3.3-1. Hazardous Waste Accumulation Points and Storage Areas**

Site	Description	Location (Building No.)
Satellite Accumulation Points <sup>(a)</sup>		
a	121 CAMS/Southwest Corner	Bldg. 931
b	121 CAMS	Bldg. 940
c	121 CAMS/A/C Wash Rack	
d	121 CAMS/AGE	Bldg. 932
e	160 CAMS/South Parking Lot	Bldg. 885
f	160 CAMS/AGE	Bldg. 885
g	160 CAMS/Hydraulic Shop	Bldg. 885
h	160 CAMS/Corrosion Control	Bldg. 885
i	121 CAMS/Engine Shop	Bldg. 595
j	160 CAMS/Engine Shop	Bldg. 885
k	Fuel Cell	Bldg. 597
Storage Areas <sup>(b)</sup>		Hazardous Waste Storage Area 905/908

Notes: <sup>(a)</sup> Location 557 identified in December 1993 Environmental Baseline Survey is no longer utilized.

<sup>(b)</sup> Locations 560 and 555 identified in December 1993 Environmental Baseline Survey are no longer utilized.

Source: U.S. Air Force, 1993.

Rickenbacker ANGB does not have a hazardous waste permit with the Ohio Environmental Protection Agency (EPA). Instead, the number (OH3571924544) is a registration number with the U.S. EPA for a large quantity generator with less than 90 days storage. This number was first issued by the U.S. EPA for the old hazardous waste storage area (Building 560), which is Site 1 of the IRP investigation. At that time, Rickenbacker ANGB had registered for a RCRA Part A treatment, storage, or disposal facility (TSDF) permit. When the Ohio EPA received the authority to administer the RCRA permitting program, Rickenbacker ANGB was using Facility No. 555, which was a large-quantity generator storage

1 area (central accumulation point). Consequently, the Ohio EPA has always  
2 considered the U.S. EPA number as a registration number for a large quantity  
3 generator. There is no expiration date for the number and no issuance date  
4 from the Ohio EPA.

5 On-base management of hazardous wastes is outlined in the Rickenbacker  
6 ANGB HWMP and the SPCC Plan, which provide guidance for management  
7 and handling of hazardous wastes as well as contingency plans for any release  
8 of a hazardous waste.

9 During 1991, a total of approximately 21,000 pounds of hazardous waste was  
10 generated by operations at Rickenbacker ANGB. These wastes consisted  
11 mainly of solvents and various petroleum wastes such as nonrecycled oils and  
12 fuels, paints, and batteries.

13 **Realignment Baseline.** At the time of base realignment, all of the hazardous  
14 wastes generated by base functions will have been collected from all storage  
15 and designated satellite accumulation points and disposed off site to a permitted  
16 facility, in accordance with the RCRA. All of the hazardous (waste-generating  
17 processes) maintained by Rickenbacker ANGB will be confined to the  
18 cantonment area. Hazardous waste generated by the operating locations will be  
19 tracked to ensure proper identification, storage, transportation, and disposal, as  
20 well as implementation of waste minimization programs.

### 21 3.3.3 Installation Restoration Program Sites

22 The IRP is an Air Force program to identify, characterize, and remediate past  
23 environmental contamination on its installations. Although widely accepted at  
24 the time, procedures followed prior to the mid-1970s for managing and disposing  
25 of many wastes often resulted in contamination of the environment. The  
26 program has established a process to evaluate past disposal sites, control the  
27 migration of contaminants, and control potential hazards to human health and  
28 the environment. Section 211 of the Superfund Amendments and  
29 Reauthorization Act (SARA), codified as the Defense Environmental Restoration  
30 Program (DERP), of which the Air Force IRP is a subset, ensures that the  
31 Department of Defense (DOD) has the authority to conduct its own  
32 environmental restoration programs. The DOD coordinates IRP activities with  
33 the U.S. EPA and appropriate state agencies.

34 Prior to passage of SARA and the establishment of the National Contingency  
35 Plan (NCP) for hazardous waste sites, Air Force IRP procedures followed DOD  
36 policy guidelines mirroring the U.S. EPA's Superfund Program. Since SARA  
37 was passed, most federal facilities have been placed on a federal docket and the  
38 U.S. EPA has been evaluating the facilities' waste sites for possible inclusion on  
39 the National Priorities List (NPL). The U.S. EPA has proposed Rickenbacker  
40 ANGB for listing on the NPL. No Federal Facilities Agreement has been  
41 developed for Rickenbacker ANGB.

1 The Rickenbacker Restoration Advisory Board (RRAB) has been established  
2 under the requirements of the Base Realignment and Closure Act (BRAC) to  
3 provide an avenue for public input in the environmental restoration of the current  
4 Air Force property to be excessed. Comments received by the RRAB will be  
5 addressed by the BRAC Cleanup Project Team and may be incorporated into  
6 the BRAC Cleanup Plan (BCP) for the base. The BCP contains the status,  
7 management and response strategy, and action items related to the  
8 Rickenbacker ANGB ongoing environmental restoration and associated  
9 compliance programs. These programs support restoration of the base property,  
10 which is necessary to meet the requirements for the property disposal and reuse  
11 activities associated with the realignment of the installation.

12 Ongoing activities at identified IRP sites may delay or limit some proposed land  
13 uses at or near those sites. Future land uses by the recipients on a site-specific  
14 level may be, to a certain extent, limited by the severity of contamination or  
15 level of remediation effort at these IRP sites. Reasonably foreseeable land use  
16 constraints are discussed in this EIS. Regulatory review as required by the Air  
17 Force programs will also ensure that any site-specific land use limitations are  
18 identified and considered. The Air Force programs will also ensure sufficient  
19 opportunity for public involvement in this decision process. A representation of  
20 the IRP Management Process followed by Rickenbacker ANGB is shown in  
21 Figure 3.3-1.

22 The original IRP was divided into four phases, consistent with CERCLA:

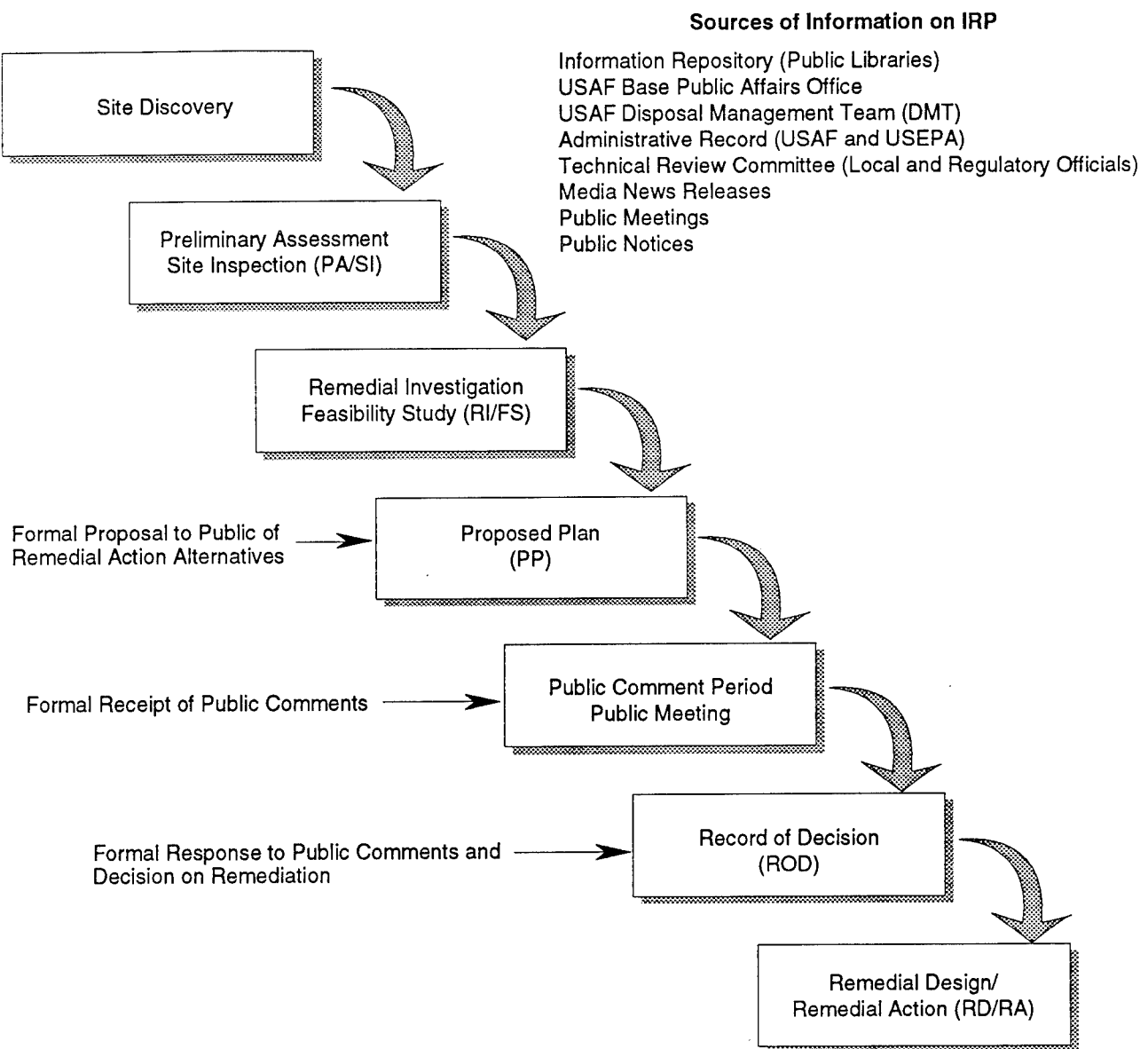
- 23 • Phase I: Problem Identification and Records Search
- 24 • Phase II: Problem Confirmation and Quantification
- 25 • Phase III: Technology Development
- 26 • Phase IV: Corrective Action

27 After SARA was passed in 1986, the IRP was realigned to incorporate the  
28 terminology used by the U.S. EPA and to integrate the new requirements in the  
29 NCP. The result was the creation of three action stages:

- 30 • Preliminary Assessment/Site Inspection (PA/SI)
- 31 • Remedial Investigation/Feasibility Study (RI/FS)
- 32 • Remedial Design/Remedial Action (RD/RA).

33 The PA portion of the first stage under the NCP is comparable to the original IRP  
34 Phase I and consists of a records search and interviews to determine whether  
35 potential problems exist. A brief SI that may include soil and water sampling is  
36 performed to give an initial characterization or confirm the presence of  
37 contamination at the potential site.

**INSTALLATION RESTORATION PROGRAM (IRP) PROCESS  
(The CERCLA Process)**



**Pictorial Presentation  
of IRP Process**

**Figure 3.3-1**

1 An RI is similar to the original Phase II and consists of additional field work and  
2 evaluations to assess the nature and extent of contamination. It includes a risk  
3 assessment and determines the need for site remediation.

4 The original IRP Phase IV has been replaced by the FS and the RD within the  
5 third stage. The FS documents the development, evaluation, and selection of  
6 remedial action (RA) alternatives to remediate the site. The selected alternative  
7 is then designed and implemented. Long-term monitoring is often performed in  
8 association with site remediation to ensure future compliance with contaminant  
9 standards or achievement of remediation goals. The Phase III portion of the IRP  
10 process is not included in the normal SARA process. Technology development  
11 under SARA is done under separate processes, including the Superfund  
12 Innovative Technology Evaluation program. The Air Force has an active  
13 technology development program in cooperation with the U.S. EPA to find  
14 solutions to problems common to Air Force facilities.

15 The realignment of Rickenbacker ANGB will not affect the ongoing IRP activity.  
16 These IRP activities, managed by the operating location, will continue in  
17 accordance with federal, state, and local regulations to protect human health and  
18 the environment, regardless of the disposal decision. The Air Force will retain  
19 any interests (e.g., easements) necessary to operate and maintain all remedial  
20 systems.

21 The public may keep abreast of the IRP at Rickenbacker ANGB through various  
22 sources of information (see Figure 3.3-1). Additionally, the IRP, as mandated by  
23 CERCLA and the NCP, has a public participatory program much like the one in  
24 the preparation of this EIS. The Air Force will, with the acceptance of each  
25 RI/FS by the regulatory community, prepare a proposed plan for the remediation  
26 of a site(s) which will include a discussion of alternatives considered. The  
27 proposed plan will be distributed to the public for comment; a public meeting will  
28 be held to discuss the proposed plan; and comments on the proposed plan will  
29 be accepted by the Air Force. The Air Force will then respond to all comments,  
30 making those responses part of a decision document on what the remediation  
31 will entail prior to any remedial action being taken (Figure 3.3-1).

32 **Pre-Realignment Reference.** Because the Air Force began the IRP process at  
33 Rickenbacker ANGB in 1987 prior to terminology and procedural changes, both  
34 phases and stages are contained in the IRP administrative record located at  
35 operating location R, AFBCA, 2146 Club Road, Building 548, Rickenbacker Air  
36 National Guard Base, Ohio 43217-5548. The IRP Phase I Records Search was  
37 published in June 1987. It initially identified 27 potential contaminated sites: two  
38 Category 2, eight Category 3, two Category 4, five Category 6, and ten Category  
39 7. Of these sites, 22 were recommended for further evaluation.

40 In 1988 the Air Force initiated the SI in order to collect, analyze, and evaluate  
41 additional data for the 22 sites identified during the PA. Concurrent with the SI  
42 was the preparation of plans and specifications for removal of abandoned USTs  
43 from Rickenbacker ANGB. One UST site was later identified as IRP Site 28

which included 22 USTs. However, this site was not included in the SI which was begun in 1988 and completed in 1992.

Several USTs were also identified as IRP sites (ST-29 through ST-38). The tanks were removed at sites ST-30 through ST-37 in 1991 under the ANG Rapid Response Initiative and Site Assessment/Closure Assessment (SA/CA) reports were prepared for sites ST-29 through ST-38. One SA/CA report (Site ST-30) has been accepted as final by the Ohio Bureau of Underground Storage Tank Regulations (BUSTR); the Air Force also received concurrence on the No Further Action Decision Document for Site ST-35 from BUSTR. Site Assessment Reports and a joint Corrective Action Plan have been written for Sites 29 and 38. An Engineering Evaluation/Cost Analysis has been accomplished for Sites 9 and 17. Three additional IRP sites (SS-39, SS-40, SS-41) were identified in 1993 and an SI will be performed at each one.

The SI recommended further investigations for some, but not all, of the sites, as discussed below. An RI/FS is currently in progress to determine the extent of contamination to the soils and groundwater for Site Nos. 2, 3, 4, 6, 9, 12, 17, 19, 20, 21, 22, 23, 24, 25, and 27; the data generated will then provide a foundation for the preparation of a base-wide risk assessment report as part of the RI. Remediation methods and timetables will be developed as part of the FS.

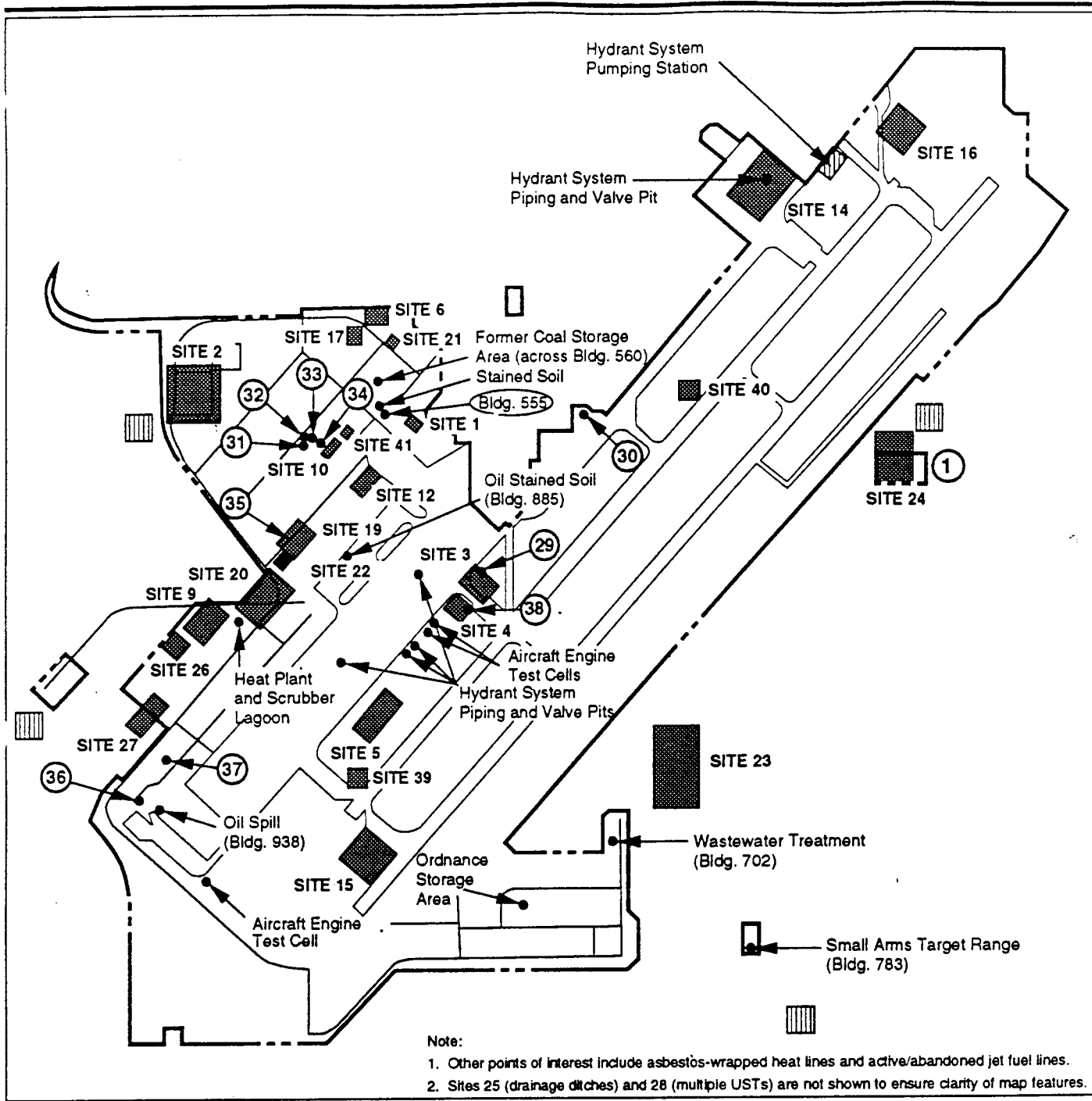
Fifteen IRP sites have thus been identified at the Rickenbacker ANGB for inclusion in the remediation process (see Figure 3.3-2).

Results of sampling procedures utilized during IRP site characterization at the Rickenbacker ANGB were based on a number of standards. These included the ambient water quality criteria for human health, which protects the highest beneficial use of water. The MCLs were also considered to define the highest legally enforceable standards for certain constituents within drinking water which cannot be exceeded.

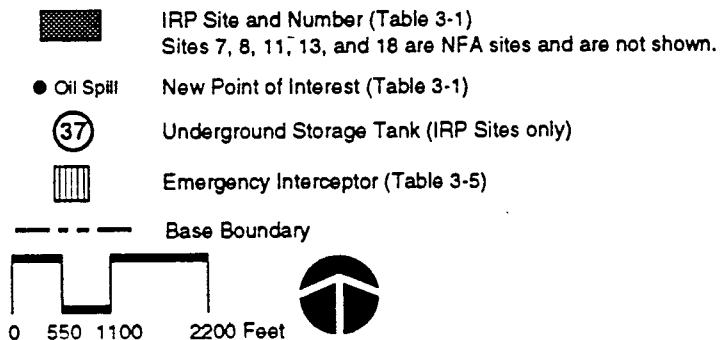
IRP sites identified at Rickenbacker ANGB are numbered and described in Table 3.3-2.

**Realignment Baseline.** The realignment of Rickenbacker ANGB will not affect ongoing IRP activities. These IRP activities will continue, in accordance with U.S. EPA, state, and local regulatory agency regulations, to protect human health and the environment, regardless of the alternative chosen for reuse.

Prior to the transfer of any property at Rickenbacker ANGB, the Air Force must comply with the provisions of CERCLA § 120(h). CERCLA § 120(h) requires that, before property can be transferred from federal ownership, the United States must provide notice of specific hazardous substance activities and conditions on the property and, when there have been any such hazardous substance activities, include in the deed a covenant warranting that all remedial action necessary to protect human health and the environment, with respect to any hazardous substance remaining on the property, has been taken before the date of such transfer.



#### EXPLANATION



#### IRP Sites and POIs Under Investigation

Figure 3.3-2



Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
1	Hazardous Waste Storage Area		The Hazardous Waste Storage Area is currently being closed under RCRA regulations (Engineering-Science, 1992).
2	JP-4 Bulk Storage Tank Farm		<p>Site 2 consists of a diked area enclosing six, one-million gallon capacity, above-grade fuel storage tanks. Three large spills have been recorded since 1979, ranging in size from 1,000 to 60,000 gallons. Most of the spilled fuel was reportedly recovered, either as ponded liquid or as excavated fuel-saturated soils. There have also been several smaller spills in the Rickenbacker Port Authority (RPA) fuel loading area. All contaminated soils resulting from these spills were reportedly excavated. An interceptor trench and recovery sump were installed along the north end of the fuel loading area to intercept and recover fuel floating on the water table. Soil and groundwater samples were collected and analyzed for volatile organic compounds (VOCs), lead, and total petroleum hydrocarbons (TPH). SI activities at Site 2 included the drilling of seven wells and two borings, a 39 point soil-gas survey, groundwater sampling, and in-situ hydraulic conductivity testing in seven wells.</p> <p>Soil samples contained benzene, toluene, ethylbenzene and xylene (BTEX), lead, and TPH. Petroleum hydrocarbons were detected in the soils and groundwater particularly near the ANG loading area and wastewater leachfield. The maximum detected lead and TPH concentrations were above background concentrations established for the Base. The maximum detected BTEX concentrations did not exceed established human health risk criteria.</p> <p>Groundwater samples contained VOCs (benzene, ethylbenzene, trichloroethylene and 1,2-trans-dichloroethylene), lead, and TPH. The maximum detected concentrations of lead, benzene, and trichloroethylene exceed their respective MCLs. These contaminants were detected in groundwater from the middle aquifer which is suitable for domestic water supply. In the area of Site 2, groundwater flow direction is toward domestic supply wells.</p> <p>Remedial Investigation (RI) is recommended for Site 2 to delineate the magnitude and extent of soil contaminated with TPH and with lead and to delineate the extent of groundwater contaminated with VOCs and with TPH.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
Page 2 of 12

Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
3	JP-4 Pumping Station No. 4		<p>Site 3 includes a building and eight-50,000 gallon underground storage tanks which supply fuel to nearby transient aircraft revetments and one-25,000 gallon defueling tank. In 1976, the site was flooded with 25,000 gallons of JP-4 fuel from a ruptured pipeline. Only 1,000 gallons of fuel were recovered. The remaining fuel either evaporated, infiltrated the soils, or entered the storm-ditch network (Site 25). SI activities at Site 3 included the drilling of two wells and four borings, a 10 point soil-gas survey, groundwater sampling and in-situ hydraulic conductivity testing in two wells. Soil and groundwater samples were analyzed for TPH in 1988 and for TPH, lead, and VOCs in 1989.</p> <p>Soil samples contained benzene, lead, and TPH. The maximum TPH concentration exceeded the background concentration. The maximum benzene and lead concentrations do not exceed the maximum environmental risk criteria.</p> <p>Groundwater samples contained lead and TPH. The maximum lead concentration exceeded its MCL.</p> <p>In 1991, Science and Technology, Inc. conducted an additional assessment which included 22 soil borings and three monitoring wells [Site 29 (Facility 890-Pumphouse 4) Rickenbacker Air National Guard Base, Columbus, Ohio, August 1991]. Data from this investigation determined that VOCs were contained in soils and groundwater upgradient of the site. These data will be used in conjunction with all available data from the site during the RI for this site.</p> <p>RI is recommended for Site 3 to delineate the extent of TPH in groundwater and in soil.</p>
4	JP-4 Pumping Station No. 5		<p>Site 4 includes a building, four 50,000 gallon UST and the area around Pumping Station No. 5. These facilities supply fuel to nearby C-130 revetments. In 1985, 200 gallons of JP-4 fuel was spilled when a tank was overfilled. The spill was reportedly never cleaned up. The fuel either evaporated, infiltrated the soils, or entered the Base storm-drain network (Site 25). SI activities at Site 4 included drilling two wells and two borings, a five-point soil-gas survey, groundwater sampling, and in-situ hydraulic conductivity testing in two wells. Soil and groundwater samples were analyzed for TPH in 1988 and for TPH, lead, and VOCs in 1989.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
4 (Cont.)	JP-4 Pumping Station No. 5		<p>Soil samples contained VOCs (benzene, ethylbenzene, xylenes, and 2-butanone), lead, and TPH. The maximum lead and TPH concentrations exceeded their respective background concentrations. The maximum detected concentration for each of the VOCs did not exceed the risk criteria for either human health or the environment.</p> <p>Groundwater samples contained VOCs (benzene, ethylbenzene, and 1,2-trans-dichloroethylene), lead, and TPH. Only benzene and lead exceed their respective MCLs.</p> <p>RI is recommended to evaluate the extent of soil containing TPH and lead at concentrations above background and the extent of groundwater contaminated with VOCs and with TPH.</p>
6	Base Filling Station (Shopette)		<p>Site 6 is the location of two previous fuel leaks. In 1985, approximately 100 gallons of unleaded gasoline leaked from an underground storage tank when a line connection ruptured. In 1987, one of three underground storage tanks was determined to be leaking. Upon removal of the tanks, gasoline was observed floating on the water table in the excavated pit. The impacted soils were removed and new, fiberglass tanks were installed in the pit. Gasoline was not observed floating on the water table after the new tanks were installed. SI activity at Site 5 included drilling two wells, an eight point soil-gas survey, groundwater sampling and in-situ hydraulic conductivity testing in two wells. Soil and groundwater samples were analyzed for TPH and lead in 1988, and for VOCs, lead, and TPH in 1989.</p> <p>Soil samples obtained in 1989 contained VOCs (BTEX), lead, and TPH. The maximum detected TPH concentration exceeded its background concentration while the maximum detected lead concentration did not exceed background. Maximum detected BTEX concentrations do not indicate a risk to either human health or to the environment.</p> <p>Groundwater samples contained benzene and lead. Both concentrations exceed their respective MCLs.</p> <p>RI is recommended for Site 6 to delineate the extent of soil containing elevated TPH concentrations and to delineate the extent of groundwater contaminated with benzene.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
Page 4 of 12

Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
9	Salvage Yard Facility No. 906		<p>Site 9 consists of a former salvage yard and the surrounding area. In an accident in 1983, several pesticide drums were ignited, resulting in a chemical spill. The salvage yard is currently inactive. SI activities at Site 9 included drilling two wells, ten hand borings, an 11 point soil-gas survey, groundwater sampling, and an in-situ hydraulic conductivity test in one well. Soil and groundwater samples were analyzed for priority pollutant metals, VOCs, semi-volatile organic compounds (SVOCs), pesticides, herbicides, and polychlorinated biphenyls (PCBs). Additional groundwater samples were analyzed for total and dissolved priority pollutant metals in 1989.</p> <p>A total of 32 compounds including SVOCs, pesticides, and metals were detected in the soil samples. The most common SVOCs were coal-tar derivatives and phthalates. The maximum detected concentration of arsenic, cadmium, copper, lead, mercury, nickel, silver, and zinc exceeded their respective background values. Maximum concentrations of arsenic, beryllium, cadmium, and zinc exceeded either human health or environmental risk criteria. The potential for adverse environmental effects caused by residual concentrations of the pesticides (4,4-DDD, 4,4-DDE, dieldrin, and gamma-BHC) cannot be determined because of the lack of comparison criteria.</p> <p>Groundwater samples contained arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, thallium, and zinc. No SVOCs, pesticides, herbicides, or PCBs were detected in the groundwater samples. Arsenic, beryllium, cadmium, chromium, lead, nickel, and thallium exceed their respective MCLs.</p> <p>Focused Feasibility Study (FFS) is ongoing to determine appropriate action.</p>
12	Old Drum Storage Area		<p>Site 12 is the location of a concrete-paved area used for storage of drums containing methyl ethyl ketone (2-butanone), solvents, and paint strippers. The area is adjacent to a drainage ditch where any leakage would have been flushed and into which the contents of some of the drums were dumped. SI activities at Site 12 included drilling two wells, ten hand borings, a seven point soil-gas survey, groundwater sampling, and in-situ hydraulic conductivity tests in the two wells. Soil and groundwater samples were analyzed for methyl ethyl ketone, VOCs, SVOCs, and TPH. In 1989, additional samples were analyzed for VOCs and TPH.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
Page 5 of 12

Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
12 (Cont.)	Old Drum Storage Area		<p>No SVOCs and methyl ethyl ketone were detected in the soil samples. VOCs were detected at concentrations that did not exceed human health risk criteria. The maximum TPH concentration exceeded the background value. The potential for adverse environmental effects caused by the contaminants in soil could not be evaluated because of a lack of environmental risk criteria for the contaminants.</p> <p>Groundwater samples contained TPH and trichloroethylene. The maximum trichloroethylene concentration did not exceed its MCL. The potential for adverse environmental effects caused by the contaminants in groundwater could not be evaluated because of the lack of environmental risk criteria.</p> <p>Focused Feasibility Study (FFS) is recommended for Site 12 to determine appropriate action.</p>
17	Old Entomology Laboratory		<p>Activities at Site 17 are not conclusively known. The PA report described the location as a building where equipment that was used to spray pesticides was cleaned and stored. This building was reportedly destroyed by fire. Base records, however, report a nearby building as the location of the old entomology lab rather than the destroyed building. SI activities at Site 17 included drilling one well, ten hand borings, groundwater sampling, and in-situ hydraulic conductivity testing of the well. Soil and groundwater samples were analyzed for pesticides and herbicides.</p> <p>Three pesticides (4,4-DDD, 4,4-DDE, and 4,4-DDT) were detected in soil samples at concentrations that did not exceed their respective human health criteria.</p> <p>One pesticide (4,4-DDD) and one herbicide (2,4,5-TP) were detected in groundwater samples. The maximum concentration of 4,4-DDD detected in 1988 exceeded the human health risk criteria, however this compound was not detected in 1989. The maximum concentration of 2,4,5-TP did not exceed risk criteria.</p> <p>The potential for adverse environmental effects due to the presence of the three pesticides in soil and 4,4-DDD and 2,4,5-TP in groundwater can not be evaluated because of the lack of comparison criteria.</p> <p>Site 17 is undergoing a Focused Feasibility Study (FFS) at this time.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
19	North Coal Pile		<p>Site 19 is the location of a large rectangular concrete pad capable of holding 6,000 tons of coal. The north coal pile has been in use since 1953. Currently, no coal is stored in the area. A National Pollution Discharge Elimination System (NPDES) permit was obtained in 1988 for the runoff from the site. In response to permitting requirements, the drainage pattern was altered to collect all runoff at the southern corner of the site. SI activities at Site 19 included drilling two wells and five borings, a 19 point soil-gas survey, ditch-bottom sediment sampling, surface water and groundwater sampling, and in-situ hydraulic conductivity testing in two wells. In 1988, soil, groundwater, surface water, and ditch-bottom sediment samples were analyzed for SVOCs, priority pollutant metals, TPH, and sulfates. Additional groundwater samples were analyzed for VOCs, SVOCs, priority pollutant metals, TPH, and sulfates in 1989.</p> <p>Soil samples contained five SVOCs, TPH, and metals. Of the five SVOCs, only di-n-butyl-phthalate has available human health and environmental risk criteria and the maximum concentration did not exceed the criteria. Arsenic and thallium were the only metals whose concentrations exceeded risk criteria and background values. The TPH concentrations exceeded background.</p> <p>Metals and sulfates were detected in groundwater samples. Metals were detected at concentrations above MCLs. Total arsenic, cadmium, lead, and nickel concentrations their respective MCLs.</p> <p>Eight metals were detected in surface water samples. The maximum total concentrations of arsenic, beryllium, cadmium, copper, nickel, selenium, and zinc exceed their respective MCLs. Chromium is the only metal not to exceed its MCL. Concentrations of all eight metals detected exceeded their respective aquatic life risk criteria and many exceeded other environmental risk criteria.</p> <p>Nine metals, seven SVOCs, and TPH were detected in ditch-bottom sediment samples. The maximum arsenic concentration exceeded both its human health risk criteria and its environmental risk criteria. Beryllium also exceeded its human health risk criteria but did not exceed its environmental risk criteria. Cadmium and selenium concentrations exceeded their respective environmental risk criteria.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions

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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
19 (Cont.)	North Coal Pile		RI is recommended for Site 19 because each of the four media investigated contain contaminants at concentrations that indicate a potential risk exists for either human health or to the environment.
20	South Coal Pile		<p>The South Coal Pile is a large irregularly-shaped asphalt slab capable of storing 4,000 tons of coal. The area has been in use since 1953. Currently no coal is stored in the area. The site is surrounded by drainage ditches which receive runoff from the pile. SI activities at Site 20 included drilling three wells and three borings, a 12 point soil-gas survey, groundwater, surface water, and ditch-bottom sediment sampling, and in-situ hydraulic conductivity testing in three wells. Soil, groundwater, surface water, and ditch-bottom sediment samples were analyzed for VOCs, priority pollutant metals, TPH, and sulfates.</p> <p>Soil samples contained TPH, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, thallium, and zinc. The maximum detected concentrations of arsenic, cadmium, copper, lead, and thallium exceeded their respective background concentration. In addition, the maximum concentration of beryllium exceeded the human health risk criteria. The thallium and cadmium concentrations also exceeded environmental risk criteria. The TPH concentration did not exceed its background value.</p> <p>Eleven metals and sulfates were detected in groundwater samples. The total concentrations of arsenic, beryllium, cadmium, chromium, copper, lead, nickel, and thallium exceed their respective MCLs.</p> <p>Eight metals were the only contaminants detected in surface water samples. The maximum total concentrations of arsenic, beryllium, cadmium, lead, nickel, and selenium exceed their respective MCLs. Concentrations of all eight metals exceed their respective risk criteria for aquatic life and many exceed other environmental risk criteria.</p> <p>Ditch-bottom sediment samples contained TPH, ten metals, and seventeen SVOCs. The maximum detected concentrations of arsenic, beryllium, cadmium, copper, and nickel indicates the potential for risk to human health and to the environment exists at this site.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
20 (Cont.)	South Coal Pile		RI is recommended for Site 20 because each of the four media sampled contain contaminants at concentrations that indicate a potential risk for either human health or to the environment.
21	Leaking Drum and Oil Change Area at Water Treatment Plan		<p>Site 21 includes two areas of oil-stained soil. One area is approximately 100 square feet of stained gravel and soil where crank case oils have been drained. The second area is approximately 50 square feet of soil surrounding a barrel of WD-30 lubricating oil. This area is within the fenced area surrounding the Base Wastewater Treatment Plant. SI activities at Site 21 included drilling one well and one boring, six hand borings, groundwater sampling, and an in-situ hydraulic conductivity test in one well. Soil and groundwater samples were analyzed for aromatic VOCs, priority pollutant metals, and TPH.</p> <p>Soil samples contained BTEX, TPH, and metals. BTEX concentrations did not exceed human health risk criteria. The maximum TPH, cadmium, copper, lead, and nickel concentrations exceeded their respective background concentrations. Concentrations of arsenic and beryllium exceeded their respective human health risk criteria. Arsenic and nickel exceeded their respective environmental risk criteria.</p> <p>Ten metals were detected in groundwater samples. Antimony, arsenic, beryllium, lead, nickel, and thallium exceeded their respective MCLs. Maximum metal concentrations did not exceed environmental risk criteria.</p> <p>Site 21 underwent an Engineering Evaluation/Cost Analysis (EE/CA). An interim removal action is programmed for soil removal and treatment at this site.</p>
22	Heating Plant Lube Oil Drum Storage		Site 22 is a concrete pad behind the heating plant, adjacent to the North Coal Pile. This area is used to store drums of oil. Approximately 20 square feet of oil-stained gravel are visible around the edge of the pad. Stressed vegetation also is evident around the edges of the pad. Oil-stained soil and gravel adjacent to a nearby shed are also included in Site 22. SI activities at Site 22 included drilling one well and one boring, two hand borings, surface soil and groundwater sampling, and an in-situ hydraulic conductivity test in one well. Soil and groundwater samples were analyzed for VOCs and TPH.



Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
22 (Cont.)	Heating Plant Lube Oil Drum Storage		<p>TPH and seven VOCs were detected in the soil samples. The maximum concentrations of the VOCs did not exceed human health criteria. No environmental criteria are available for the detected VOCs. The TPH concentration exceeded background.</p> <p>No contaminants were detected in the groundwater samples.</p> <p>Site 22 underwent an EE/CA. An interim removal action is programmed for soil removal and treatment at this site.</p>
23	Fire Training Area		<p>Site 23 consists of three loosely-packed earthen dikes intended to contain flammable liquids which are ignited for fire training purposes. The diked areas range in size from 4,000 to 22,000 square feet. Much of the dike material is stained and has a strong petroleum odor. The dikes rest on top of an old runway surface which is constructed of one to three inches of asphalt over eight to twelve inches of reinforced concrete. Surface runoff from the area would flow to either side of the old runway and into catch basins. Although the basins are covered with soil and plants, they appear to collect drainage from the site. SI activities at Site 23 included drilling five wells and eight borings, a 25 point soil-gas survey, groundwater sampling, and in-situ hydraulic conductivity tests in five wells. Soil and groundwater samples were analyzed for priority pollutant metals, PCBs, pesticides, VOCs, and SVOCs.</p> <p>A total of 33 compounds, including SVOCs, VOCs, and metals, were detected in soil samples. Detected concentrations of arsenic, beryllium, cadmium, copper, lead, mercury, and nickel exceed their respective background concentrations. Many of these metals also exceed either human health or environmental risk criteria. No other contaminant detected in soils samples either exceeded its respective background concentration, or human health risk criteria, or environmental risk criteria.</p> <p>Metals, SVOCs and pesticides were detected in groundwater samples. The maximum detected concentration of antimony, arsenic, beryllium, cadmium, chromium, lead, nickel, and thallium were above their respective MCLs. Concentrations of total cadmium, chromium, copper and nickel exceed environmental risk criteria. The maximum detected concentrations of 4,4-DDE, 4,4-DDT, and diethyl phthalate do not exceed human health risk criteria.</p> <p>RI is recommended to delineate the extent of soil contaminated with metals and with SVOCs.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
24	Sanitary Sewage Treatment Sludge Beds		<p>Site 24 includes concrete sludge beds and the sludge disposal area. The Base Sewage Treatment Plant was active between the late 1950s and 1983. While in operation, the sludge beds were periodically filled to allow the sludge to dewater. The partially dried sludge was either transported off-base or deposited in the sludge disposal area as a soil enhancer for a community garden plot. Residual dried sludge remains in the beds. SI activities at Site 24 included drilling four wells, four hand borings, surface soil (sludge) and groundwater sampling, and in-situ hydraulic conductivity testing in four wells. Soil samples from the sludge beds, sludge spreading area, and the solid borings for the initial three monitoring wells were analyzed for pesticides, PCBs, herbicides, and priority pollutant metals. Groundwater samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and priority pollutant metals.</p> <p>Metals were the only contaminants detected in soil samples. The maximum detected concentrations of arsenic, chromium, copper, silver, and zinc exceeded their respective background concentrations. Detected concentrations of arsenic, beryllium, chromium, copper, nickel, thallium, and zinc indicate a potential risk for either human or environmental receptors exists at this site.</p> <p>Metals were the only contaminant detected in groundwater samples. Arsenic was the only metal to have a concentration above its MCL. Total concentrations of cadmium, chromium, copper, and nickel indicate a potential risk to environmental receptors. Site 24 is undergoing a full RI/FS investigation.</p>
25	Storm Drainage Ditch System		<p>Site 25 includes all the open drainage ditches throughout the Base. Various spills, leaks, and dumping eventually discharged into the storm-drain network. All surface water runoff from the Base eventually passes through this drainage system. The drains lead to open ditches and through oil-water separators located at the Base boundaries. SI activities in the four drainage basins included the drilling of four wells, a 121 point soil-gas survey, ditch-bottom sediment, surface water, and groundwater sampling, and in-situ hydraulic conductivity testing in four wells. Soil, groundwater, surface water, and ditch-bottom sediment samples were analyzed for VOCs, SVOCs, pesticides, herbicides, PCBs, and priority pollutant metals.</p> <p>None of the contaminants that were detected in soil samples occurred at concentrations indicating risk.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
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Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
25 (Cont.)	Storm Drainage Ditch System		<p>Groundwater samples contained pesticides and metals. Total concentrations of arsenic, beryllium, cadmium, chromium, lead, and nickel exceeded their respective MCLs.</p> <p>Surface water samples contained metals, pesticides, and PCBs. The maximum detected concentrations of cadmium and PCBs exceeded their respective MCLs.</p> <p>Forty-two chemicals, including metals, VOCs, SVOCs, and pesticides, were detected in ditch-bottom sediment samples. The maximum detected concentrations of arsenic and beryllium indicate a potential human health risk exists at this site. Concentrations of arsenic, cadmium, and zinc indicate a potential environmental risk exists at this site.</p> <p>RI is recommended for this site because three of the four media investigated contain contaminants that indicate the potential exists for adverse effects to human health and to the environment. The primary contaminants of concern are SVOCs and metals in ditch-bottom sediments.</p>
27	Drainage Ditch Near Landfill		<p>Site 27 includes the drainage ditch adjacent to the landfill gate. In 1982, a spill of unknown origin was observed in the ditch. A sample of the spill was analyzed and found to contain a series of alkylbenzenes, terpene hydrocarbons, alkyl naphthalene, and inorganic compounds. In an attempt to reduce dispersion of the contaminants, bags of activated carbon were placed downstream of the spill. SI activities at Site 27 included drilling one well, sampling ditch-bottom sediments, surface water, and groundwater and hydraulic conductivity testing of one well.</p> <p>In 1988, soil, groundwater, surface water, and ditch-bottom sediment samples were analyzed for VOCs, SVOCs, pesticides, herbicides, PCBs, and priority pollutant metals.</p> <p>Seven metals (arsenic, beryllium, chromium, copper, lead, nickel, and zinc) and one SVOC (diethyl phthalate) were detected in the soil samples. The maximum arsenic concentration exceeded the site background value and exceeded human health risk criteria. The maximum beryllium concentration also exceeded human health risk criteria. None of the concentrations detected in soil exceeded their respective environmental risk criteria.</p>

Table 3.3-2. Installation Restoration Program Site Descriptions  
Page 12 of 12

Site Number	Site Description/ Name	Operable Unit(s)	Location and Waste Description
27 (Cont.)	Drainage Ditch Near Landfill		<p>Five metals were the only contaminants detected in groundwater samples. No metal concentration exceeded its MCL.</p> <p>Zinc was the only contaminant detected in surface water samples. The maximum concentration is below the environmental risk criteria.</p> <p>Twenty-eight contaminants, including eight metals, 17 SVOCs, one VOC, and two pesticides were detected in ditch-bottom sediment samples. Arsenic is the only compound that exceeded its human health risk criteria. The maximum concentrations of arsenic, cadmium, and selenium indicates the potential exists for adverse environmental effects.</p> <p>RI is recommended for site 27 to delineate the extent of soil and ditch-bottom sediment containing elevated concentrations of metals and SVOCs. Site 27 will be incorporated into the RI of Site 25.</p>
28	Miscellaneous USTs		22 USTs undergoing Ras for removal in 1994.
29 through 38	Miscellaneous USTs		Multiple USTs undergoing Ras, FS/RDs, Soil Remediation, and/or awaiting closure approval. Sites 30, 35, and 36 have closure completed status.
39, 40	Fuel Dump		PA/SI scheduled for 1994.
41	Waste Oil, Fuel, and Degreaser UST Near Building 848		PA/SI scheduled for 1994.

Furthermore, for all government property transfers by deed, a covenant must also warrant that any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States.

The Air Force must complete the CERCLA process for the contaminated sites on Rickenbacker ANGB and provide the assurances required by CERCLA § 120(h) for all properties transferred. The combination of these requirements may delay parcel disposition or conveyance and affect reuse.

The Air Force is committed to the identification, assessment, and remediation of the contamination from hazardous substances at Rickenbacker ANGB. This commitment will ensure the protection of public health, as well as restoration of the environment. Additionally, the Air Force will work aggressively with the regulatory community to ensure that parcel disposition of conveyance occurs at the earliest possible date so as not to impede the economic redevelopment of the area through reuse of Rickenbacker ANGB. Quantification of those delays based on the conceptual plans for all redevelopment alternatives, and what is currently known at this stage of the IRP, is not possible.

### 3.3.4 Storage Tanks

USTs are subject to federal regulations within RCRA, 42 U.S.C. 6991 and U.S. EPA implementing regulations, 40 CFR 280. These regulations were mandated by the Hazardous and Solid Waste Amendments of 1984. The state regulates both USTs and aboveground storage tanks (ASTs) under the ORC 3745.

**Pre-Realignment Reference.** UST policies, responsibilities, maintenance, and environmental guidance are provided by the Environmental Management Office 121 SG/EM, located in Building 863. A total of 86 USTs have been identified at Rickenbacker ANGB, 23 of which are still being used and are considered active (Table 3.3-3) and 63 USTs which are no longer in service or have been removed (Table 3.3-4). Disposition of tanks will be addressed as part of Air Force compliance with CERCLA, as discussed above.

Table 3.3-5 provides an inventory of Rickenbacker ANGB ASTs, which range in size from 125 to 1 million gallons. All of the 40 ASTs identified in Table 3.3-5 are active or potentially active. There are also 16 oil/water separators at Rickenbacker ANGB, ranging in size from 470 to 3,850 gallons (Table 3.3-6).

The airport hydrant fuel distribution system consists of six 1 million-gallon ASTs containing JP-4 which feed into two 25,000-gallon and twelve 50,000-gallon USTs. Fuel is delivered to aircraft fueling areas through a series of pipelines connecting the USTs to fuel distribution hydrants. The airport hydrant fuel distribution system is currently deferred from UST regulations under 40 CFR Part 2809; subparts B, C, D, E, and G. The deferrals do not exempt or defer the system from corrective action and financial responsibility regulations.

ASTs are regulated by the Division of State Fire Marshal. ASTs containing flammable or combustible liquids as defined under 29 CFR 1910.106 are subject to applicable regulations. Exempted ASTs at Rickenbacker ANGB include heating oil tanks containing less than 660 gallons used for delivery of fuel to a designated heating system only.

Table 3.3-3. Inventory of Active Underground Storage Tanks

Facility No.	Tank No.	Capacity (gallons)	Contents	Installation Date	Construction Material	Regulated (R)/ Nonregulated (NR)
Bldg. 493	5	2,000	Wastewater/Fuel	6/1/65	Steel	R
Bldg. 538	6	2,000	Diesel Fuel	6/1/60	Steel	R
Bldg. 538	7	2,000	MoGas	6/1/60	Steel	R
Bldg. 538	8	2,000	MoGas	6/1/60	Steel	R
Bldg. 898	27	25,000	JP-4	6/1/53	Steel	R
Bldg. 898	28	50,000	JP-4	6/1/53	Steel	R
Bldg. 898	29	50,000	JP-4	6/1/53	Steel	R
Bldg. 898	30	50,000	JP-4	6/1/53	Steel	R
Bldg. 898	31	50,000	JP-4	6/1/53	Steel	R
Bldg. 898	32	50,000	JP-4	6/1/53	Steel	R
Bldg. 898	33	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	34	25,000	JP-4	6/1/53	Steel	R
Bldg. 899	35	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	36	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	37	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	38	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	39	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	40	50,000	JP-4	6/1/53	Steel	R
Bldg. 899	83	12,000	Wastewater/Fuel	6/1/53	Steel	R
Bldg. 918	95	200	Waste Hydraulic Oil	Unknown	Steel	R
Bldg. 879	101	1,000	Diesel Fuel	Unknown	Steel	R
Bldg. 911	103	1,000	Diesel Fuel	Unknown	Steel	R
Bldg. 830	126	1,000	Wastewater/Fuel	11/20/91	Steel	R

Notes: MoGas = Motor gasoline.  
 JP-4 = Jet petroleum fuel.  
 Data current as of 1 June 1994.

**Table 3.3-4. Inventory of Inactive and Removed Underground Storage Tanks**  
**Page 1 of 2**

Location (Facility No.)	Tank No.	Capacity (gallons)	Contents	Date of Installation	Year Abandoned	Regulated (R)/ Nonregulated (NR)
Bldg. 406	87	12,000	Gasoline	6/1/52	1953 <sup>(c)</sup>	R
Bldg. 406	88	12,000	Gasoline	6/1/42	1953 <sup>(c)</sup>	R
Bldg. 413	109	100	Gasoline	6/1/42	1993 <sup>(c)</sup>	R
Bldg. 413	110	2,500	Unknown	Unknown	Unknown <sup>(c)</sup>	R
Bldg. 413	111	1,000	Diesel Fuel	Unknown	Unknown <sup>(c)</sup>	R
Bldg. 430	1	6,000	MoGas	4/1/88	1993	R
Bldg. 430	2	6,000	MoGas	4/1/88	1993	R
Bldg. 430	3	6,000	MoGas	7/1/53	1981 <sup>(c)</sup>	R
Bldg. 430	4	6,000	MoGas	7/1/53	1981 <sup>(c)</sup>	R
Bldg. 504 <sup>(c)</sup>	102	1,000	Diesel Fuel	1983	Closed	R
Bldg. 554	53	12,000	Diesel Fuel	6/1/42	1981 <sup>(c)</sup>	R
Bldg. 554	54	12,000	Diesel Fuel	6/1/42	1981 <sup>(c)</sup>	R
Bldg. 554	55	12,000	Diesel Fuel	6/1/42	1981 <sup>(c)</sup>	R
Bldg. 554	56	12,000	Diesel Fuel	6/1/42	1981 <sup>(c)</sup>	R
Bldg. 554	57	1,000	Kerosene	6/1/42	1981 <sup>(c)</sup>	R
Bldg. 560	47	25,000	De-icing Fluid	6/1/42	1992 <sup>(a)</sup>	R
Bldg. 560	48	25,000	Water	6/1/42	1992 <sup>(a)</sup>	NR
Bldg. 560	49	25,000	Waste Oil	6/1/42	1993	NR
Bldg. 560	50	25,000	Waste Fuel	6/1/42	1993	R
Bldg. 560	51	25,000	Water	1/1/50	1964 <sup>(c)</sup>	NR
Bldg. 560	52	25,000	Water	1/1/50	1964 <sup>(c)</sup>	NR
Bldg. 560	106	25,000	Water	1/1/50	1964 <sup>(c)</sup>	NR
Bldg. 600	77	2,500	Fuel Oil	6/1/60	1983 <sup>(c)</sup>	NR
Bldg. 700	90	5,000	Fuel Oil	1959	1993	NR
Bldg. 709	91	1,000	Fuel Oil	1959	1993	NR
Bldg. 710	92	2,000	Fuel Oil	1959	1993	NR
Bldg. 740	93	2,000	Fuel Oil	1959	1993	NR
Bldg. 846 <sup>(c)</sup>	9	8,000	Diesel Fuel	8/1/70	Removed	R
Bldg. 846 <sup>(c)</sup>	10	8,000	MoGas	8/1/70	Removed	R
Bldg. 846 <sup>(c)</sup>	11	15,000	MoGas	8/1/70	Removed	R
Bldg. 848	12	5,000	Waste Oil	6/1/64	1964 <sup>(c)</sup>	R
Bldg. 848 <sup>(c)</sup>	104	5,000	Fuel Oil	1964	Removed	NR
Bldg. 877 <sup>(c)</sup>	76	940	Diesel Fuel	6/1/61	Removed	R

Notes: <sup>(a)</sup> Tank removed in 1991 under Rapid Response Initiative.

<sup>(b)</sup> Tank to be removed under IRP Program.

<sup>(c)</sup> Tank has been removed.

MoGas = Motor gasoline.

JP-4 = Jet petroleum fuel.

NaOH = Sodium hydroxide.

Data current as of 1 June 1994.

**Table 3.3-4. Inventory of Inactive and Removed Underground Storage Tanks**  
**Page 2 of 2**

Location (Facility No.)	Tank No.	Capacity (gallons)	Contents	Date of Installation	Year Abandoned	Regulated (R)/ Nonregulated (NR)
Bldg. 890	13	25,000	Water/JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	14	50,000	Water/JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	15	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	16	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	17	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	18	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	19	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	20	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	21	50,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 890	81	6,000	Wastewater/Fuel	6/1/52	1990	R
Bldg. 891	22	25,000	JP-4	6/1/52	1990 <sup>(b)</sup>	R
Bldg. 891	23	50,000	JP-4	6/1/53	1990 <sup>(b)</sup>	R
Bldg. 891	24	50,000	JP-4	6/1/53	1990 <sup>(b)</sup>	R
Bldg. 891	25	50,000	JP-4	6/1/53	1990 <sup>(b)</sup>	R
Bldg. 891	26	50,000	JP-4	6/1/53	1990 <sup>(b)</sup>	R
Bldg. 891	82	6,000	Wastewater/Fuel	6/1/53	1990	R
Bldg. 902	97	1,000	Diesel Fuel	Unknown	1992 <sup>(c)</sup>	R
Bldg. 932 <sup>(c)</sup>	105	15,000	Fuel Oil	1955	Removed	NR
Bldg. 944	107	200	Fuel Oil	Unknown	1993 <sup>(c)</sup>	NR
Bldg. 944	108	200	Waste Hydraulic Oil	1977	1993	R
Bldg. 985	99	250	Diesel Fuel	Unknown	1992 <sup>(c)</sup>	R
Bldg. 1030	41	25,000	NaOH & Water	6/1/53	1981 <sup>(c)</sup>	R
Bldg. 1030	42	50,000	NaOH & Water	6/1/53	1981 <sup>(c)</sup>	R
Bldg. 1030	43	50,000	NaOH & Water	6/1/53	1981 <sup>(c)</sup>	R
Bldg. 1030	44	50,000	NaOH & Water	6/1/53	1981 <sup>(c)</sup>	R
Bldg. 1030	45	50,000	NaOH & Water	6/1/53	1981 <sup>(c)</sup>	R
Bldg. 1030	84	2,000	Wastewater/Fuel	6/1/53	1981 <sup>(c)</sup>	R
Bldg. 1040	98	300	Diesel Fuel	Unknown	1992 <sup>(c)</sup>	R
Bldg. 1093 <sup>(c)</sup>	46	300	Diesel Fuel	6/1/53	Removed	R
Bldg. S-5	80	500	Diesel Fuel	8/1/70	1984 est	R

Notes: <sup>(a)</sup> Tank removed in 1991 under Rapid Response Initiative.

<sup>(b)</sup> Tank to be removed under IRP Program.

<sup>(c)</sup> Tank has been removed.

MoGas = Motor gasoline.

JP-4 = Jet petroleum fuel.

NaOH = Sodium hydroxide.

Data current as of 1 June 1994.



Table 3.3-5. Inventory of Aboveground Storage Tanks

Location (Facility No.)	Capacity (gallons)	Contents	Date of Installation	Regulated (R)/ Nonregulated (NR)
Bldg. 441	275	Kerosene	1970	R
Bldg. 500	250	Diesel Fuel	1951	R
Bldg. 502	300	Diesel Fuel	Unknown	R
Bldg. 504	1,000	Diesel Fuel	1992	R
Bldg. 505	500	Diesel Fuel	1992	R
Bldg. 550	275	Fuel Oil	Unknown	NR
Bldg. 690	125	Diesel Fuel	1982	R
Bldg. 783	500	Fuel Oil	1977	NR
Bldg. 821	1,000	Fuel Oil	1967	NR
Bldg. 824	1,000,000	JP-4	1952	R
Bldg. 825	1,000,000	JP-4	1952	R
Bldg. 826	1,000,000	JP-4	1952	R
Bldg. 827	1,000,000	JP-4	1952	R
Bldg. 828	1,000,000	JP-4	1952	R
Bldg. 829	1,000,000	JP-4	1952	R
Bldg. 868	250	MoGas	1984	R
Bldg. 877	450	MoGas	1987	R
Bldg. 877	1,000	Diesel Fuel	1986	R
Bldg. 877	275	Fuel Oil	1987	NR
Bldg. 885	300	Waste Oil	Unknown	R
Bldg. 885	300	Waste Oil	Unknown	R
Bldg. 885	300	Waste Oil	Unknown	R
Bldg. 899	Unknown	Diesel Fuel	Unknown	NR
Bldg. 901	2,000	Fuel Oil	1986	R
Bldg. 908	1,400	Waste JP-4	Unknown	R
Bldg. 908	1,000	Waste Hydraulic Fluid	Unknown	R
Bldg. 908	1,000	Waste Oil	Unknown	R
Bldg. 915	10,000	De-icing Liquid	Unknown	NR
Bldg. 915	10,000	De-icing Liquid	Unknown	NR
Bldg. 918	500	Diesel Fuel	Unknown	R
Bldg. 1005	125	Diesel Fuel	1982	R
Bldg. 1093	250	Diesel Fuel	1959	R
Bldg. 97,000	100 lb	Liquid Propane	Unknown	R
Bldg. 97,000	100 lb	Liquid Propane	Unknown	R
<b>Bowers</b>				
Civil Engineering Yard	275	Fuel Oil	N/A	NR
Bldg. 885	1,000	Diesel Fuel	N/A	R
Bldg. 885	1,000	Diesel Fuel	N/A	R
Bldg. 885	1,000	Diesel Fuel	N/A	R
Bldg. 885	700	JP-4	N/A	R
Bldg. 885	500	MoGas	N/A	R

N/A = Not Applicable.  
Data current as of 1 June 1994.

1 **Table 3.3-6. Inventory of Oil/Water Separators at Rickenbacker ANGB**

Location (Facility No.)	Capacity (gallons)	Description	Date of Installation	Regulated (R)/ Nonregulated (NR)
Bldg. 597	950	NW of Bldg. 597	1954	NR
Bldg. 597	950	SE of Bldg. 597	1954	NR
Bldg. 824	500	NW of Bulk Storage Facility 824	1990	NR
Bldg. 825	500	NW of Bulk Storage Facility 825	1990	NR
Bldg. 826	500	NW of Bulk Storage Facility 826	1990	NR
Bldg. 885	3,500	SE of Bldg. 885	1984	NR
Bldg. 926	1,000	Test Cell/Hush House	1978	NR
Bldg. 3099	3,850	Emergency Interceptor	1971	NR
Bldg. 3102	3,850	Emergency Interceptor	1960	NR
Bldg. 3320	3,850	Emergency Interceptor	1960	NR
Bldg. 3325	3,850	Emergency Interceptor	1965	NR
Facil. 846	3,217	Emergency Interceptor	1970	NR
Facil. 3330	2,500	3330A Separator N of Bldg. 848	1977	NR
Facil. 3330	470	3330B Separator N of Bldg. 848	1977	NR
Facil. 3331	540	3331 Separator SE of Bldg. 931	1975	NR
Facil. 3332	2,000	3332 Separator SE of Bldg. 931	1975	NR

2  
3 Source: U.S. Air Force, 1993

Emergency oil/water separators are expeditiously emptied after use and, as such, are not subject to regulations pertaining to USTs.

**Realignment Baseline.** USTs that meet the state and local regulations may be left in place to support reuse activities. USTs that do not meet current regulations will be deactivated and removed. ASTs will be purged to minimize fire hazards at base realignment, and reactivated if needed to support reuse activities. All oil/water separators will be pumped and cleaned of any contaminants.

### 3.3.5 Asbestos

Asbestos containing material (ACM) remediation is regulated by the U.S. EPA (40 CFR 763), the Occupational Safety and Health Administration (OSHA) (29 CFR 1910), and the Ohio EPA (ORC 3745). Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the Clean Air Act (CAA), which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). NESHAP regulations address the demolition or renovation of buildings with ACM. The Toxic Substances Control Act (TSCA) and the Asbestos Hazard Emergency Response Act (AHERA) provide the regulatory basis for handling ACM in kindergarten through 12th grade school buildings. AHERA and OSHA regulations cover worker protection for employees who work around or remediate ACM.

Renovation or demolition of buildings with ACM (regulated by NESHAP) has a potential for releasing asbestos fibers into the air. Asbestos fibers could be released due to disturbance or damage from various building materials, such as pipe and boiler insulation, acoustical ceilings, sprayed-on fire proofing, and other material used for sound-proofing or insulation.

**Pre-Realignment Reference.** The current Air Force practice is to manage or remove ACM in active facilities and to remove ACM prior to facility demolition following regulatory requirements. A basewide survey for ACM is required by Federal Property Management Regulations (FPMR) disclosure law prior to disposal of portions of the base. Removal of ACM occurs when there is a potential for asbestos fiber release that would affect the environment or human health. The Air Force policy concerning the management of asbestos for base closures can be found in Appendix G.

A comprehensive asbestos survey is underway for Rickenbacker ANGB. The survey has been ongoing since 1990 (see Appendix G). The 121 ARW/EM is the base organization responsible for the asbestos management program at Rickenbacker ANGB. The asbestos management plan is contained in the HWMP for Rickenbacker ANGB. The results of the survey to date indicate that 73 facilities still contain ACM. Table G-1 in Appendix G lists the facilities at Rickenbacker ANGB sampled for ACM and the sampling results for each facility.

**Realignment Baseline.** Asbestos will be removed as necessary to protect human health. Beyond that, an analysis will be conducted to determine the cost effectiveness of removing ACM versus the impacts of ACM on the market value of the property, when sale of the property is planned. ACM will be removed if a building is, or is intended to be, used as a school or child-care facility. Where nonfriable asbestos is determined to be present on facility piping, the asbestos would be managed in accordance with commonly accepted standards, criteria, and procedures to ensure sufficient protection of human health and the

environment. Nonfriable asbestos encountered during facility renovation or demolition would be the responsibility of the owner and is regulated under NESHAP to prevent the release of asbestos fibers due to damage and disturbance of ACM. Exposed friable asbestos will be removed or remediated in accordance with Air Force policy (Appendix G) and applicable health laws, regulations, and standards, if it is determined that a health hazard exists.

### 3.3.6 Pesticide Usage

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the registration and use of pesticides. Pesticide management activities are subject to federal regulations contained in 40 CFR 162, 165, 166, 170, and 171.

All pest management activities at Rickenbacker ANGB are conducted in accordance with Air Force regulations and management recommendations, which follow FIFRA guidelines set forth by the State of Ohio.

**Pre-Realignment Reference.** The pest management program at Rickenbacker ANGB is conducted by the 121 ARW/DEE, which inspects on-base application practices. Table 3.3-7 provides an inventory of pesticides currently utilized at Rickenbacker ANGB. Currently, only minimal quantities of pesticides are stored on base. Rickenbacker ANGB is in the process of moving the pesticides to Wright-Patterson AFB for storage because they lack an adequate storage. Rickenbacker ANGB does not intend to store pesticides on base in the future, except temporarily prior to use. Products are purchased on an as-needed basis, and may be directly obtained through local channels or ordered through base supply. Therefore, quantities stored on site vary considerably over time.

**Table 3.3-7. Pesticides Inventory/Storage**

Building	Type	Quantity	Year of Operation
412	Sevin 4-oil	Unknown	Unknown-1992
	Krovar 1	Unknown	
	Dribrom 14	100 gallons	
	Malathion	770 gallons	
	2,4 D	55 gallons	
422	Unknown	Unknown	Unknown-1992
557	Rid-a-Bird 1100	Unknown	Unknown-1992
	Dursban L.O.		
	Diazinon 4E		
	Talon-G		
	Sevin		
	BP-300		
	Tempo W.P.		
	Pyrid E.C.		
	Drione insecticide		
	PT 555 Allethrin		
	PT 270 Dursban		

Source: U.S. Air Force, 1993.

**Realignment Baseline.** At the time of realignment, pesticides will continue to be used, on an as-needed basis, for pest management and grounds maintenance.

### 3.3.7 Polychlorinated Biphenyls

Commercial PCBs are industrial compounds produced by chlorination of biphenyls. PCBs persist in the environment, accumulate in organisms, and concentrate in the food chain. PCBs are used in electrical equipment, primarily in capacitors and transformers, because they are electrically nonconductive and stable at high temperatures.

The disposal of these compounds is regulated under TSCA, which banned the manufacture and distribution of PCBs with the exception of PCBs used in enclosed systems. By federal definition, PCB equipment contains 500 parts per million (ppm) PCBs or more, whereas PCB-contaminated equipment contains PCB concentrations equal to or greater than 50 ppm but less than 500 ppm. The U.S. EPA under TSCA regulates the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB equipment than for PCB-contaminated equipment. Ohio EPA enforces PCB regulations through the federal TSCA program.

**Pre-Realignment Reference.** The 121 ARW/EM is responsible for the management of PCBs at Rickenbacker ANGB. Recently, an outside contractor completed surveying the 260 electrical transformers located on base. Survey and sampling results indicate that 31 transformers are considered PCB contaminated (50-500 ppm) and 6 are considered PCB containing (greater than 500 ppm). The 121 ARW/EM will continue performing quarterly inspections of these transformers until the transformers are replaced.

**Realignment Baseline.** No federally regulated PCB or PCB-contaminated equipment under control of the Air Force will be left on base at realignment. No other entities (e.g., utility companies) own PCB equipment on base.

### 3.3.8 Radon

Radon is a naturally occurring, colorless, and odorless radioactive gas that is produced by radioactive decay of naturally occurring uranium. Uranium decays to radium, of which radon gas is a byproduct. Radon is found in high concentration in rocks containing uranium, such as granite, shale, phosphate, and pitchblende. Atmospheric radon is diluted to insignificant concentrations. Radon that is present in soil, however, can enter a building through small spaces and openings and accumulate in enclosed areas, such as basements. The cancer risk caused by exposure, through the inhalation of radon, is currently a topic of concern.

There are no federal or state standards regulating radon exposure at the present time. The U.S. EPA offers a pamphlet, "A Citizen's Guide to Radon" (U.S. EPA, 1992), that offers advice to persons concerned about radon in their homes. U.S. Air Force policy requires implementation of the Air Force Radon Assessment and Mitigation Program (RAMP) to determine levels of radon exposure of military personnel and their dependents. The U.S. EPA has made testing recommendations for both residential structures and schools. For residential structures, using a 2- to 7-day charcoal canister test, a level between 4 and 20 picocuries per liter (pCi/l) should lead to additional screening within a few years.

For levels of 20 to 200 pCi/l, additional confirmation sampling should be accomplished within a few months. If the level is in excess of 200 pCi/l, the structure should be evacuated immediately. Schools are to use a 2-day charcoal canister test; if readings are 4 to 20 pCi/l, a 9-month school year survey is required. Table 3.3-8 summarizes the recommended radon surveys and action levels.

**Table 3.3-8. Recommended Radon Surveys and Mitigations**

Facility	U.S. EPA Action Level	Recommendation
Residential	4 to 20 pCi/l	Additional screening. Expose detector for 1 year. Reduce radon levels within 3 years if confirmed high readings exist.
Residential	20 to 200 pCi/l	Perform follow-up measurements. Expose detectors for no more than 3 months.
Residential	Above 200 pCi/l	Perform follow-up measurements. Expose detectors for no more than 1 week. Immediately reduce radon levels.
<b>Two-Day Weekend Measurement</b>		
School	4 to 20 pCi/l	Confirmatory 9-month survey. Alpha track or ion chamber survey.
School	Greater than 20 pCi/l	Diagnostic survey or mitigation.

Note: Congress has set a national goal for indoor radon concentration of the outdoor ambient levels of from 0.2 to 0.7 pCi/l.

Source: A Citizen's Guide to Radon, 1986.

**Pre-Realignment Reference.** Air Force policy requires a detailed radon assessment program for levels of 4 pCi/l or greater. The 121 ARW/EM is the base organization responsible for radon assessment at Rickenbacker ANGB.

Radon sampling in water, soil, and air was conducted at Rickenbacker ANGB from May 1988 to August 1988, totaling approximately 90 days on each sample. These samples were distributed strategically throughout the inside of Rickenbacker ANGB's perimeter. The sampling media was Terradex Radon Detectors for water, soil, and air. Fifteen buildings throughout the base were sampled for radon in air. Ten locations/sites were sampled for radon in water. Ten locations were sampled for radon in soil.

Results from the air sampling were all in compliance with the Air Force and the U.S. EPA's recommendation of 4 pCi/l for air. Building 500 was close to the standard with 3.4 pCi/l but did not exceed the standard. Results from the water sampling were all in compliance with the recommended standard of 10,000 pCi/l. Results from the soil sampling contained three locations that were over the recommended standard of 500 pCi/l. These were northwest of Building 879, east of Building 930, and north of Building 930. Building 930 was also sampled for radon in air and found to be 1.3 pCi/l. This is in compliance with the air recommended standard. No current or pending actions with respect to radon surveys or abatement are planned at Rickenbacker.

**Realignment Baseline.** Initial radon screening sample results were within recommended standards, with very few exceptions. Therefore, no follow-up assessment survey is required.

### **3.3.9 Medical/Biohazardous Waste**

Federal regulations defined in 40 CFR Part 259 provide for regulation of medical wastes. The disposal of medical/biohazardous waste generated at Rickenbacker ANGB is conducted under Ohio Administrative Code (OAC) 3745-27, OAC 3745-37, and ORC 3734.

**Pre-Realignment Reference.** Rickenbacker ANGB currently operates a medical clinic that provides out-patient and emergency care to active military and their dependents, as well as retirees and their dependents. The clinic currently produces less than 50 pounds of medical/biohazardous waste per month. The clinic is considered a small quantity generator of medical waste. The waste is collected monthly by a contractor and disposed off base at a permitted landfill in accordance with the state regulations. Waste generation will decline with the approach of base realignment as services are phased out. The clinic dispenses only tablet form chemotherapeutic drugs and does not engage in radiation treatment activities. A small amount of medical/biohazardous waste is generated by the on-base dental clinics; this amount is included as part of the monthly total and disposed by the same contractor.

Medical and dental x-ray operations, as well as other on-base x-ray and photographic operations, produce photochemical wastes and utilize a silver recovery unit. The silver recovery unit treats photochemical wastes prior to shipment to the DRMO for disposal or reuse.

**Realignment Baseline.** A clinic in the ANG cantonment area will remain open and operational. The existing clinic will remain in use until a new one can be constructed. Biohazardous waste will be processed and removed in accordance with appropriate federal, state, and local regulations.

### **3.3.10 Ordnance**

There are no explosive ordnance disposal areas operated at Rickenbacker ANGB. Any ordnance remaining after base disposal would be regulated under RCRA; transportation of ordnance is regulated by the U.S. DOT.

### **3.3.11 Lead-Based Paint**

Human exposure to lead has been determined to be an adverse health risk by agencies such as OSHA and U.S. EPA. Sources of exposure to lead are through dust, soils, and paint. Wastes containing levels of lead exceeding a maximum concentration of 5.0 milligrams per liter (as measured using the Toxicity Characteristics Leaching Procedure) are defined as hazardous under 40 CFR 261. If a waste is classified as hazardous, disposal must take place in accordance with U.S. EPA and Ohio hazardous wastes rules.

In 1973, the Consumer Product Safety Commission established a maximum lead content in paint of 0.5 percent by weight in a dry film of newly applied paint; in 1978, under the Consumer Product Safety Act (P.L. 101-608, as implemented by 16 CFR 1303) the Consumer Product Safety Commission lowered the allowable lead level in paint to 0.06 percent. The act also restricted the use of

1 lead-based paints in non-industrial facilities. In 1989, U.S. EPA established a  
2 cleanup criterion for lead in soil of 500 to 1,000 ppm total lead-based on the  
3 characteristics of individual sites when the possibility of child contact exists. The  
4 Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4822(a)) and Subtitle A  
5 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (which  
6 amends the Lead-Based Paint Poisoning Prevention Act) regulate the use and  
7 management of lead-based paints in federal housing facilities. In 1993, the  
8 federal OSHA, under 29 CFR 1926, extended the permissible exposure limit for  
9 general industrial workers of 50 micrograms per cubic meter of air to include  
10 workers in the construction field.

11 To ensure that any threat to human health and the environment from lead-based  
12 paints has been identified, Air Force policy requires that a lead-based paint  
13 survey of high-priority facilities be conducted at Air Force installations. High-  
14 priority facilities consist of military family housing, transient lodging facilities,  
15 schools and other facilities frequented by children, including day care facilities  
16 and recreational areas. There are no high-priority facilities at Rickenbacker  
17 ANGB.

18 **Pre-Realignment Reference.** The primary focus of the concerns surrounding  
19 lead-based paint are in housing situations and other high-priority facilities where  
20 children may be exposed. No study to assess the presence of lead-based paint  
21 or its associated soil contamination on base has been performed on  
22 Rickenbacker ANGB because there are no high-priority facilities. The guideline  
23 used by HUD is to issue written notification to buyers of HUD homes built prior to  
24 1978 of the possible presence of lead-based paint and its associated hazards.

25 The use of lead-based paints declined after 1978. However, as there has not  
26 been a comprehensive basewide survey to determine the use of lead-based  
27 paint at Rickenbacker ANGB, it is assumed that all buildings constructed prior to  
28 1978 pose suspected contamination concerns from the use of lead-based paint.

29 **Pre-Realignment Reference.** No study to assess the presence of lead-based  
30 paint or its associated soil contamination on base has been performed. The  
31 guideline used by HUD is to issue written notification to buyers of HUD homes  
32 built prior to 1978 of the possible presence of lead-based paint and its  
33 associated hazards.

34 The base outdoor small arms firing range (Buildings 783 and 785) is on land  
35 owned by the RPA. In 1990, a range decontamination survey was conducted on  
36 a 12.5-acre plot of land located north of the existing outdoor firing range. The  
37 area was cleared to a depth of 36 inches.

38 **Realignment Baseline.** The Air Force will acknowledge that lead-based paint  
39 may be present in all facilities built prior to 1978. Therefore, disclosure will be  
40 provided on property leases or transfer documents.

### 41 3.4 NATURAL ENVIRONMENT

42 This section describes the affected environment for natural resources, including  
43 soils and geology, water resources, air quality, noise, biological resources, and  
44 cultural resources.



### 3.4.1 Soils and Geology

Resources discussed in this section include geology, soils, topography, and mineral resources. These resources may have scientific and economic value. The ROI for earth resources includes Rickenbacker ANGB and the villages of Lockbourne and Groveport.

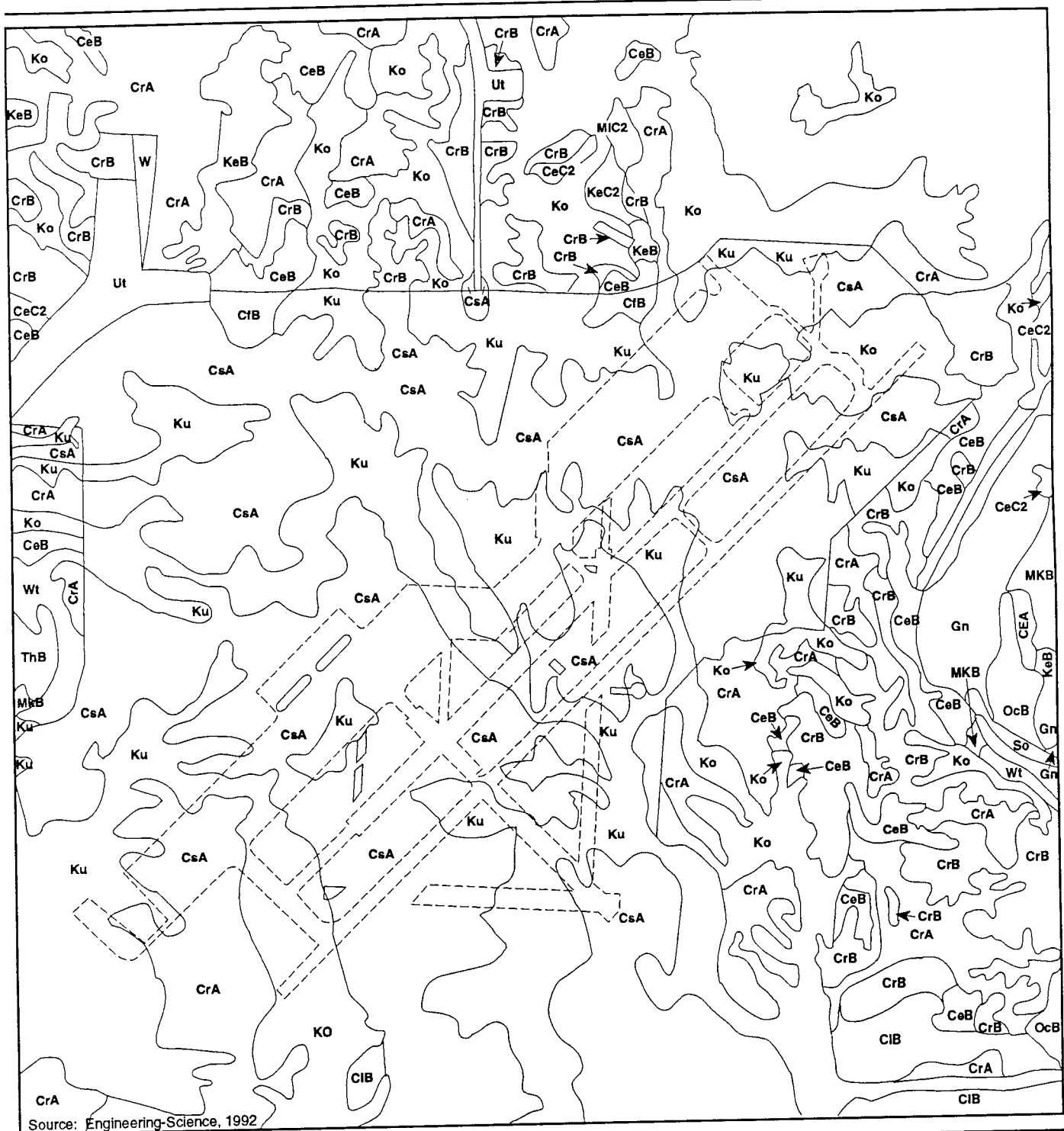
**3.4.1.1 Soils.** Soils mapped at Rickenbacker ANGB are predominantly of the Crosby-Kokomo-Celina association (U.S. Department of Agriculture, 1980a and 1980b). The soils, as depicted on Figure 3.4-1, are characterized as deep, very poorly drained, slowly to moderately slow permeable soils formed in glacial tills on uplands. Specifically, the Crosby soils are commonly found on flat areas and low knolls, with slopes of up to 6 percent. Kokomo soils are typically found in depressions, with slopes of up to 2 percent. Celina soils are typically found on knolls, ridges, and side slopes along waterways, at slopes typically greater than 6 percent. Other soils, such as the Kendallville soils, are commonly found on low hills and uplands with slopes of up to 12 percent. The Crosby soils exhibit permeabilities of 0.06 to 2.0 inches per hour. The Kokomo, Celina, and Kendallville soils all have permeabilities of 0.2 to 2.0 inches per hour. Seasonal wetness, low or moderately low permeability, and low strength are the major land use limitations of these soils (Air National Guard Readiness Center [ANGRC], 1992).

There are several areas on Rickenbacker ANGB where soils are likely to be contaminated (Engineering-Science, 1992). These locations have been identified in the IRP investigations at the base. Descriptions and locations of these areas are found in Section 3.3, Hazardous Materials and Hazardous Waste Management.

Land use after disposal of any parcels will be partially determined by soil distribution. Most of the base property is suited for the construction of buildings. However, in problem areas, limits on construction of buildings can be overcome by engineering practices, including stronger foundations in building construction. Almost all of the soils on the base are suitable, without restriction, for agriculture. The U.S. Department of Agriculture (1980a and 1980b) has determined that all arable land on Rickenbacker ANGB is prime farmland.

**3.4.1.2 Physiography and Geology.** Rickenbacker ANGB is located in an area owing its topography to glaciers. The entire Columbus valley is relatively level to gently rolling terrain. The elevation of the base is approximately 740 feet MSL (ANGRC, 1992).

Specifically, Rickenbacker ANGB is located in the Till Plains Section of the Central Lowlands physiographic province (Schmidt and Goldthwait, 1958). The Till Plains are characterized as having little relief except for areas near streams, glacial moraines or resistant bedrock. The geology of the area is characterized by approximately 200 feet of Pleistocene glacial drift, which fills a pre-glacial bedrock valley. The area is underlain by shales of the Ohio and Olentangy formations, and limestones of the Columbus and Delaware formations. These rocks are of Devonian age. The surficial tills are associated mostly with ground moraine, though locally some terminal moraine is found. Alluvial deposits are found in association with Little Walnut and Big Walnut creeks (Engineering-Science, 1992).



## Soils Distribution

### EXPLANATION

**CeA** Celina Silt Loam, 0-2% Slopes  
**CeB** Celina Silt Loam, 2-6% Slopes  
**CeC2** Celina Silt Loam, 6-12% Slopes  
**CIB** Celina Urban Land Complex, 2-6% Slopes  
**CrA** Crosby Silt Loam, 0-2% Slopes  
**CrB** Crosby Silt Loam, 2-6% Slopes  
**CsA** Crosby Urban Land Complex, 0-2% Slopes  
**CsB** Crosby Urban Land Complex, 2-6% Slopes  
**Gn** Genesee Silt Loam, occasionally flooded  
**KeB** Kendallville Silt Loam, 2-6% Slopes  
**KeC2** Kendallville Silt Loam, 6-12% Slopes

**Ko** Kokomo Silty Clay Loam  
**Ku** Kokomo Urban Land Complex  
**M1C2** Miamian Silty Clay Loam, 2-6% Slopes  
**MkB** Miamian-Kendallville Silt Loams, 2-6% Slopes  
**OCB** Ockley Silt Loam, 2-6% Slopes  
**Sh** Shoals Silt Loam, occasionally flooded  
**So** Sloan Silt Loam, frequently flooded  
**ThB** Thackery Silt Loam, 2-6% Slopes  
**Ut** Udorthents, urban land complex, gently rolling  
**WbB** Warsaw Loam, 2-6% Slopes  
**Wt** Westland Silty Loam  
**W** Water

Figure 3.4-1

Site-specific geology of the Rickenbacker ANGB has been studied in conjunction with the base's IRP. The IRP has identified a sequence of unconsolidated materials overlying shale bedrock in the vicinity of the Rickenbacker ANGB well field. Two 50- to 100-foot-thick layers of sand and gravel are separated by up to 60 feet of clay and silt. These deposits are overlain by up to 80 feet of clay and silt (Engineering-Science, 1992).

In addition, two glacial tills have been identified during IRP activities. The uppermost till is brown silty-clay or clayey-silt with traces of sand and gravel. Locally, layers of sand and gravel are found ranging from a few inches to several feet in thickness. These layers are not extensive, suggesting a lenticular morphology. The lower till is a gray silty clay or clayey-silt with traces of black sands and subangular, lithic gravels. Locally, lenses of sand and gravel are found, similar to those in the brown till (Engineering-Science, 1992).

Mineral resources in the area of Rickenbacker ANGB are limited to sand and gravel quarrying operations. There are no mineral resources or mining claims within the boundary of the base.

There are no known active seismic faults or other relevant seismic activity in the area of Rickenbacker ANGB.

### **3.4.2 Water Resources**

Water resources considered for analysis at Rickenbacker ANGB include surface water and groundwater availability and use, water quality, floodplains, and water rights. The ROI for water resources, both surface water and groundwater, includes the surface area encompassed by Rickenbacker ANGB and the vicinity watersheds and underlying aquifers. Coastal areas and wild and scenic rivers are absent from the ROI.

**3.4.2.1 Surface Water.** Rickenbacker ANGB is located in the Scioto River basin and lies along the drainage divide between Little Walnut and Big Walnut creeks. The Scioto River is 231 miles long and drains an area of 6,510 square miles. Big Walnut Creek is 74 miles long and drains an area of 557 square miles. Little Walnut Creek is 20 miles long with a 59-square-mile drainage area. Most of the surface water from the base drains into Little Walnut Creek to the south and east. Surface water from the western portion of the base drains into Big Walnut Creek to the west (ANGRC, 1992).

There are no natural or manmade lakes on Rickenbacker ANGB. An artificial pond exists on the golf course that is no longer a part of Rickenbacker ANGB.

**Water Quality.** The Scioto River is classified by the State of Ohio as a State Resource Water. This calls into effect state anti-degradation regulations, which require the maintenance of existing water quality, even if that quality is far better than state standards for that particular habitat. The current water quality of the Scioto River is acceptable for use as a water supply (Burgess & Niple, Limited, 1990, 1991, and 1992).

Located on the downstream side of Columbus, the study area has plentiful groundwater supplies, and substantial acreage has been devoted to public sewage and water treatment plants. In particular, the Southerly Wastewater Treatment Plant, located in the southwest portion of Hamilton Township, is one of the major treatment plants servicing the Columbus regional sewer system.

**Floodplains.** The objective of Executive Order 11988 (Floodplain Management) is to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development whenever there is a practicable alternative. The minimum standard established for consideration of floodplain management is any area subject to a 1 percent or greater chance of flooding in a given year. This standard is otherwise referred to as the base floodplain, the 100-year floodplain, or the 1 percent floodplain. Rickenbacker ANGB is not within the limits of a 100-year floodplain area established by the U.S. Geological Survey (USGS) or the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Franklin County, Ohio and Incorporated Areas, 1993.

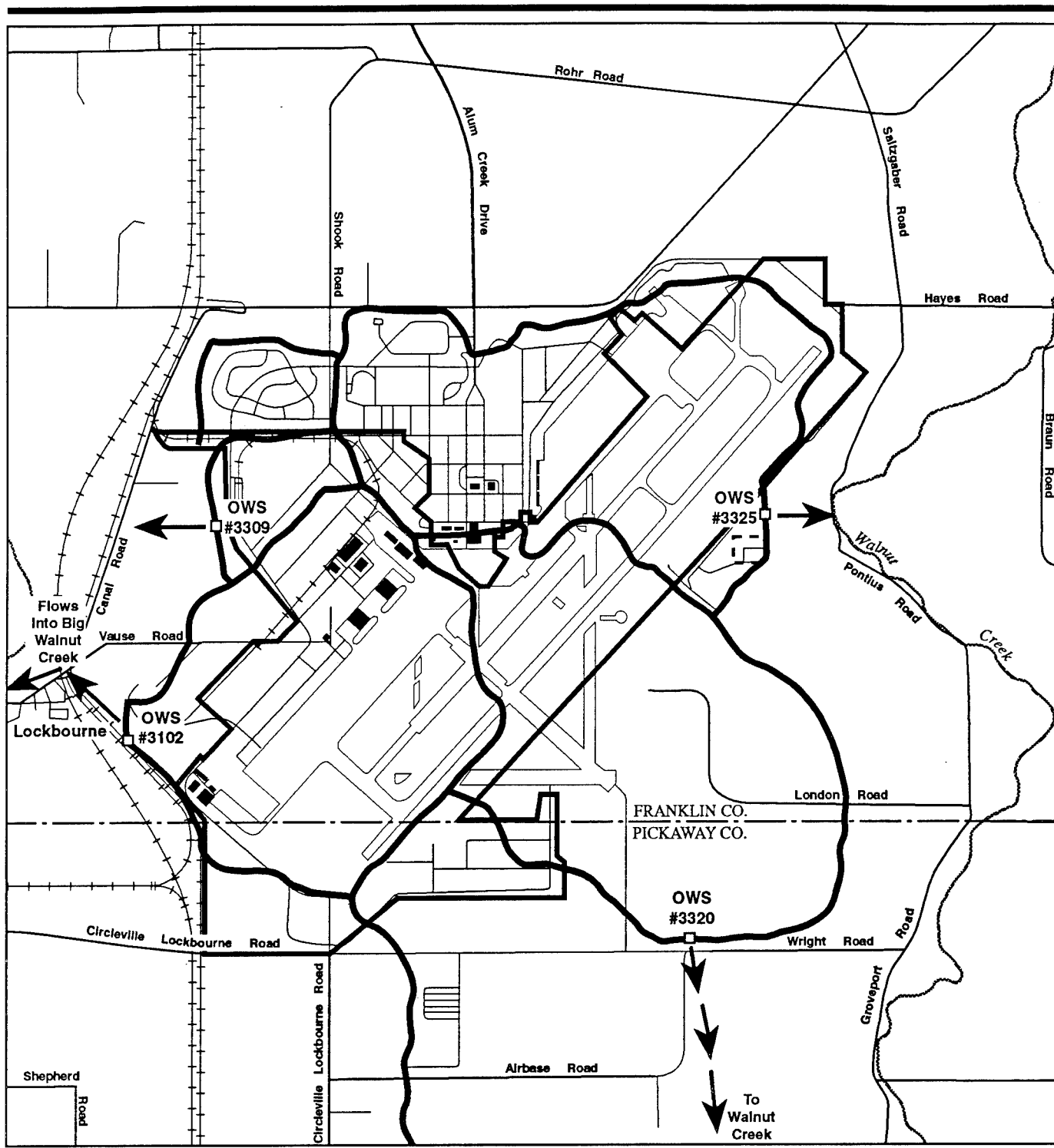
**Water Rights.** A water right is a title or claim to use a portion (or share) of public waters for a beneficial use. Such uses include diversion for domestic purposes, water for stock, irrigation, municipal and industrial supply, power production, mining, and recreation. Water must be physically diverted by means of pumps, pipelines, dams or canals before an individual may take possession of the water.

Rickenbacker ANGB does not currently have any surface water rights in the vicinity of the base. No surface water diversions for potable use occur at the base.

**3.4.2.2 Wetlands.** No jurisdictional wetlands have been identified to date at Rickenbacker ANGB. However, National Wetlands Inventory Maps indicate the presence of 178 wetland areas within the ROI. A wetlands survey is currently being performed at the base to determine if any of these areas meet the criteria for jurisdictional wetlands. No natural springs occur on Rickenbacker ANGB. Refer to Section 3.4.5.4, Sensitive Habitats, for a more detailed discussion of wetlands.

**3.4.2.3 Surface Drainage.** Surface drainage from the base is through an extensive storm drain network consisting of corrugated metal, concrete pipes, and open drainage ditches. All runoff from the base is routed through oil and water separators prior to discharge into the creeks. Figure 3.4-2 illustrates the surface water drainage network at the base. The discharge from these drainage ditches is covered under National Pollutant Discharge Elimination System (NPDES) Permit No. 41000000\*BD (1989) and is regulated by the Ohio EPA. According to the Environmental Compliance Assessment and Management Program (ECAMP) Report (EG&G, Idaho, Inc., 1991), the base needs to modify the existing NPDES permit for discharges from the oil/water separator operated by the Army Guard and from the pump house tanks at Buildings 898 and 899.

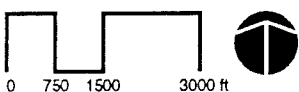
Records of surface water quality on Rickenbacker ANGB include samples required to be taken under Rickenbacker ANGB's NPDES permit. There are currently six locations where monthly samples are taken. These are listed in Table 3.4-1. The NPDES sampling protocol program monitors potential of hydrogen (pH) and flow rate monthly at all six locations, total oil and grease monthly at every location except 41000000003, and total nonfilterable residue monthly at locations 41000000003 and 41000000006.



## EXPLANATION

- OWS Oil/Water Separator
- Drainage Area Divide
- - - Rickenbacker Air National Guard Base Boundary

## Oil/Water Separators, Drainage Areas, and Surface Hydrology



Source: Engineering-Science, 1992

Figure 3.4-2

**Table 3.4-1. Description of the Location of the Required Sampling Stations for the Rickenbacker ANGB NPDES Permit**

Sampling Station	Description of Location
4I000000001	Downstream of oil/water separator No. 3102, located near the southwest corner of the base-south of Vause Road (Lat: 39° 48' 30"; Long: 82° 57' 45").
4I000000002	Downstream of oil/water separator No. 3325, located near the east side of the base-just northeast of the abandoned sewage treatment plant (Lat: 39° 49' 00"; Long: 82° 57' 00").
4I000000003	Unnamed tributary downstream of the lime sludge lagoons discharge points and upstream of the confluence with an unnamed tributary from the bulk storage tanks (Lat: 39° 49' 20"; Long: 82° 57' 00").
4I000000004	Unnamed tributary just downstream of the discharge point from the containment basin for bulk jet fuel storage tank No. 3 (sample location also monitors discharge from containment basin for tank No. 2) (Lat: 39° 49' 15"; Long: 82° 57' 05").
4I000000005	Unnamed tributary just downstream of the discharge point from the containment basin for bulk jet fuel storage tank No. 1 (Lat: 39° 49' 05"; Long: 82° 57' 05").
4I000000006	Discharge from scrubber ash lagoon (Lat: 39° 48' 35"; Long: 82° 57' 10").

Source: Ohio EPA, 1989.

**3.4.2.4 Groundwater.** A review of water well information indicates that at least three aquifers exist beneath the site. Information was reviewed from five of the Rickenbacker ANGB supply wells, 18 domestic supply wells, and the wells installed during the SI portion of the IRP. The upper aquifer is defined as the sandy layer, including the poorly connected sand and gravel lenses, found associated with the brown to gray till contact. The middle and lower aquifers are defined as thick sand and gravel layers (Engineering-Science, 1992). Available monitoring well and water supply well logs indicate a continuous silty clay beneath the upper aquifer, which creates hydraulic separation from the middle aquifer. The clay and silt layer between the middle and lower aquifers may be continuous across the site; however, available data do not confirm this (Engineering-Science, 1992). Rickenbacker ANGB supply wells are screened in the lower aquifer.

As determined from data collected from the IRP monitoring wells, hydraulic conductivity (K) values in the aquifers at Rickenbacker ANGB range from 0.004 to 4.0 feet per day. These values are consistent with typical K values for silt and silty fine sand. The hydraulic conductivity of the deep aquifer was measured at 1.81 feet per day (Engineering-Science, 1992).

There is some question as to the validity of calling the shallow aquifer an aquifer. To be classified as an aquifer, the water-bearing unit must be capable of producing sustained yields of water for domestic supply purposes. The shallow aquifer in some areas of the base meets this criteria, while in other areas it does not. In any event, it is not likely that the shallow aquifer would be used

for water supply given the proximity of a much more productive aquifer less than 100 feet deeper (Engineering-Science, 1992).

There are six water supply wells located on Rickenbacker ANGB. Five of the wells are located in the northwest portion of the base. The depths of the wells range from 201 to 232 feet. The wells are screened in the glacial sands and gravels immediately above the shale bedrock. Static water levels in the drinking water wells range from 36 to 56 feet (Engineering-Science, 1992). The sixth water well on base is found at the Heating Plant and is not used as a potable supply. This well is to be plugged in the near future. An additional water well is located at Building 911. It is used only for a geothermal heat pump located in the building. The well is approximately 80 feet deep.

Figure 3.4-3 illustrates the locations of the water wells. The domestic wells in the Village of Lockbourne are not shown on the map because they are no longer in service. Table 3.4-2 lists pertinent well data for the wells shown on Figure 3.4-3. As shown in Table 3.4-2, the local domestic wells are screened at various depths ranging from 24 to 172 feet.

Data for monthly water usage for fiscal years (FY) 1986 to 1992 at Rickenbacker ANGB are presented in Table 3.4-3. In addition, monthly average, maximum, and minimum usage figures for each FY, in millions of gallons, are presented. The total annual water production from all Rickenbacker ANGB supply wells, for the above-referenced time period, ranges from about 122.7 MG (or 0.34 MG per day) to about 242.3 MG (or 0.66 MG per day).

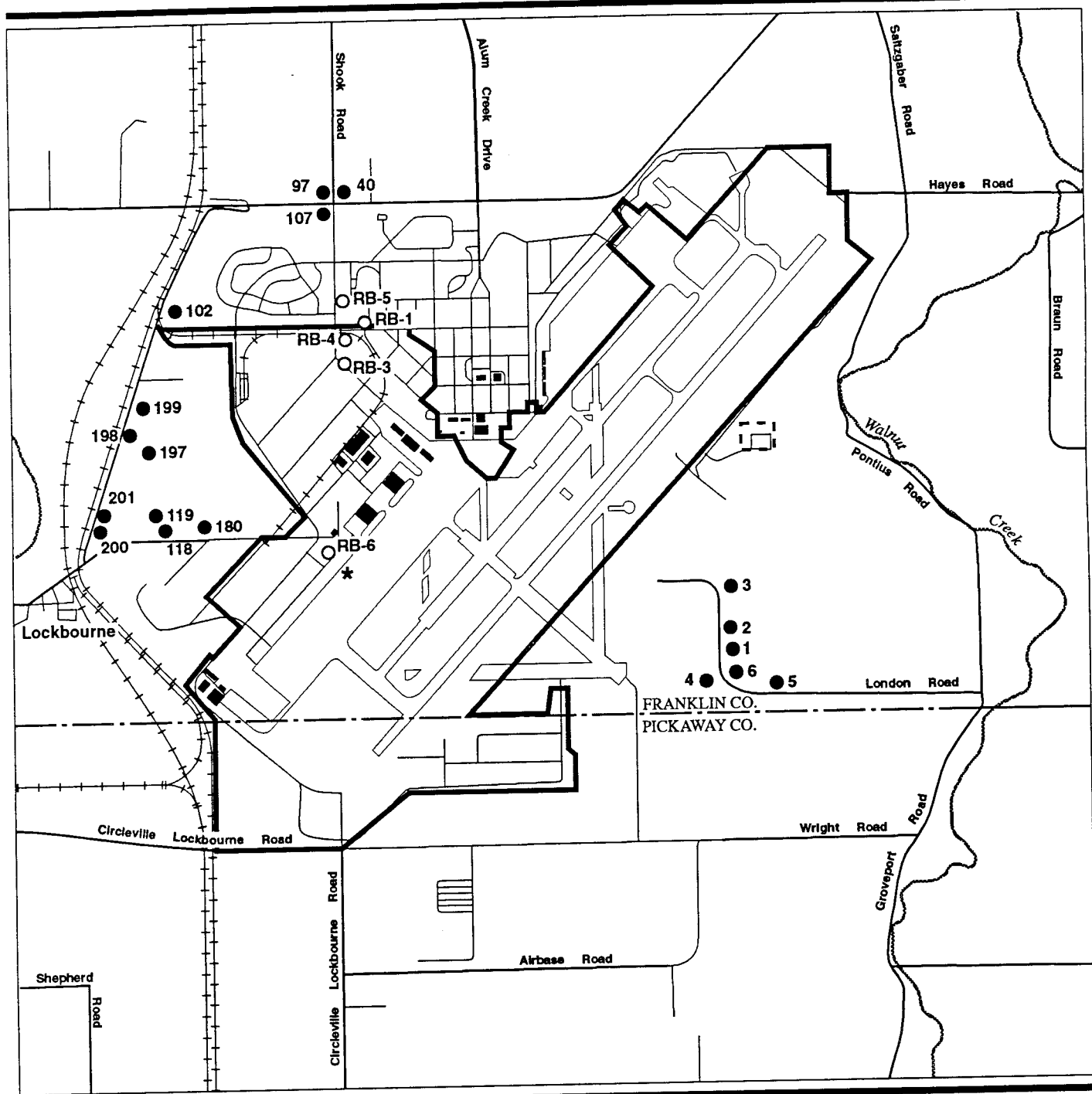
Rickenbacker ANGB was connected to the City of Columbus water system in early 1993. Of the six wells previously used for drinking water supply, three have been plugged, one more will be plugged in the near future, and two will remain accessible for deep well monitoring efforts.

**Water Quality.** The information contained in this section was obtained from a United States Geologic Survey Report (de Roche and Razem, 1984) in which the surface water and groundwater quality were studied in southern Franklin County, Ohio. Some of the data in the study were actually collected from Rickenbacker ANGB (Engineering-Science, 1992).

Groundwater in the glacial aquifer located in southern Franklin County is characterized by a very hard calcium bicarbonate composition. Calcium and magnesium are the most abundant cations. Mean concentrations are 100 milligrams per liter (mg/l) for calcium and 33 mg/l for magnesium. Bicarbonate is the most abundant anion and has a mean concentration of 389 mg/l (Engineering-Science, 1992).

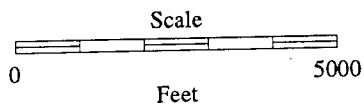
The mean pH of the groundwater is 7.13. Concentrations of dissolved iron range from 0.01 to 3.9 mg/l; 35 of the 54 sampling points exceeded the Ohio EPA water-quality standard of 0.3 mg/l for iron. Concentrations of manganese range from 5.0 to 230.0 micrograms per liter ( $\mu\text{g/l}$ ); 27 of the 54 sampling points exceeded the Ohio EPA standard of 50  $\mu\text{g/l}$  for manganese (Engineering-Science, 1992).

Concern for groundwater quality in the Village of Lockbourne has increased recently following a study that indicated a higher than average cancer rate in the area, and the discovery of chlorinated methane in some of the domestic wells



#### EXPLANATION

- \* Geothermal Water Well
- Domestic Water Well
- Base Water Well
- Rickenbacker Air National Guard Base Boundary



Source: Engineering-Science, 1992

### Water Supply Wells in the Vicinity of Rickenbacker ANGB

Figure 3.4-3



Table 3.4-2. Water Well Information, Rickenbacker ANGB, Ohio

Well No.	Well Diameter	Well Depth	Screened Interval	Static Water Level	Test Pump Rate	Drawdown
RB-1	12"	201'	181-201'	38'	434 GPM	5.3'
RB-3	12"	212'	179-211'	46'	600 GPM	16'
RB-4	12"	212'	192-211'	--	578 GPM	57'
RB-5	12"	232'	212-232'	56'	473 GPM	--
RB-6	6"	74'	63-73'	9'	120 GPM	4.5'
102	6"	96'	Perf. Pipe	50'	13 GPM	15'
118	5"	40'	30-40'	10'	10 GPM	--
119	6"	144'	--	37'	30 GPM	None
180	6"	76'	75-76'	21'	15 GPM	4'
197	4"	56'	Perf. Pipe	17'	16 GPM	None
198	4"	65'	Perf. Pipe	12'	15 GPM	None
199	5"	60'	--	5'	20 GPM	--
200	4"	62'	--	20'	8 GPM	14'
25	6"	85'	83-85'	--	15 GPM	None
97	6"	172.5'	--	43'	10 GPM	None
107	6"	169'	--	--	--	--
40	4"	60'	--	35'	6 GPM	4'
1	4"	87'	69-87'	7'	20 GPM	None
2	4"	71'	Perf. Pipe	18'	16 GPM	2'
3	4"	24'	--	--	15 GPM	--
4	4"	43'	--	20'	10 GPM	3'
5	4"	63'	Perf. Pipe	27'	16 GPM	None
6	4"	68'	--	20'	16 GPM	None

Notes: -- Indicates that information was not available.

Source: Engineering-Science, 1992.

Rickenbacker ANGB Disposal and Reuse DEIS

Table 3.4-3. Rickenbacker ANGB Well Water Pumpage (Million Gallons)

	FY-86	FY-87	FY-88	FY-89	FY-90	FY-91	FY-92
OCT	15.229	15.983	18.729	17.447	17.310	14.903	12.237
NOV	18.064	16.794	19.514	17.827	23.346	14.582	12.063
DEC	19.943	17.027	22.417	19.210	18.789	15.173	12.416
JAN	22.785	18.454	19.756	22.378	16.109	14.814	13.651
FEB	23.799	18.200	17.85	20.887	15.053	13.253	11.902
MAR	25.873	18.297	17.193	21.985	15.679	15.079	12.150
APR	25.066	17.528	17.187	19.606	15.442	14.411	11.212
MAY	19.285	17.926	17.168	19.109	15.693	15.020	12.435
JUN	18.376	17.198	17.524	16.814	15.974	12.614	11.953
JUL	19.116	17.457	17.949	16.742	16.197	13.440	12.686
AUG	18.512	17.907	18.363	18.530	16.445	13.416	
SEP	16.237	18.031	17.585	16.215	15.257	12.285	
TOTAL	242.285	210.802	221.235	226.750	201.294	168.990	122.705
MAX	25.873	18.454	22.417	22.378	23.356	15.173	13.651
MIN	15.229	15.983	17.168	16.215	15.053	12.285	11.212
AVE	20.190	17.567	18.436	18.896	16.775	14.083	12.271

(Ecology and Environment, 1986). The Village of Lockbourne was connected to the Rickenbacker ANGB water supply in June 1989 (Engineering-Science, 1992).

The general inorganic water quality of the Rickenbacker ANGB water supply wells is summarized in Table 3.4-4. The Ohio EPA analysis of samples from the Rickenbacker ANGB water supply system in June and July 1992 found no bacterial contamination. Also, analysis for pesticides in February 1991 showed that the Rickenbacker ANGB water supply system met all state and federal drinking water requirements, according to the Ohio EPA Division of Public Drinking Water. Analysis for Volatile Organic Compounds (VOCs) was conducted by the Ohio EPA in August 1990 and revealed the presence of trihalomethanes (specifically chloroform, bromoform, bromodichloromethane, and dibromochloromethane) in the Rickenbacker ANGB water supply. However, levels of these contaminants did not exceed applicable water quality standards.

### 3.4.3 Air Quality

Air quality in a given location is described as the concentration of various pollutants in the atmosphere, generally expressed in units of parts per million or micrograms per liter. Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The significance of a pollutant concentration is determined by comparing it to federal and/or state ambient air quality standards. These standards represent the maximum allowable atmospheric concentrations that may occur and still protect public health and welfare, with a reasonable margin of safety. The federal standards are established by the U.S. EPA and termed the National Ambient Air Quality Standards (NAAQS). The Ohio EPA's Division of Air Pollution Control has adopted the NAAQS to regulate pollutant levels. These standards are presented in Table 3.4-5.

The main pollutants considered in this EIS are ozone ( $O_3$ ), carbon monoxide (CO), nitrogen oxides ( $NO_x$ ), nitrogen dioxide ( $NO_2$ ), sulfur dioxide ( $SO_2$ ), and particulate matter equal to or less than 10 microns in diameter ( $PM_{10}$ ).  $NO_x$  are of concern because of their potential contribution to ozone formation. Only that portion of total  $NO_x$  that is measurable as  $NO_2$  is subject to the NAAQS. The previous NAAQS for particulate matter was based upon total suspended particulate (TSP) levels; it was replaced in 1987 by an ambient standard based only on the  $PM_{10}$  fraction of TSP.

Lead emissions are not addressed in this EIS because there are no known lead emission sources in the region or included in the reuse alternatives. Lead concentrations are monitored in a number of high population density areas throughout the United States, and all sites meet the quarterly primary and secondary standard of  $1.5 \mu g/m^3$ .

The existing air quality of the affected environment is defined by air quality data and emissions information. Air quality data are obtained by examining records from air quality monitoring stations maintained by the Ohio EPA Division of Air Pollution Control. Information on pollutant concentrations measured for short-term (24 hours or less) and long-term (annual) averaging periods is extracted from the monitoring station data in order to characterize the existing air quality background of the area. Emission inventory information for the affected

Table 3.4-4. Inorganic Water Quality Data for the Rickenbacker ANGB Potable Water Supply

	Production (MGD)	pH	Total Alkalinity (mg/l)	Hardness (mg/l)	Phosphates (mg/l)	Total Chlorine (mg/l)
			June 1992			
MAX	0.555	9.2	220	240	--	1.20
MIN	0.270	7.9	64	80	--	0.50
AVE	0.398	8.7	88	105	--	0.90
			July 1992			
MAX	0.588	9.0	100	110	--	1.20
MIN	0.255	8.4	60	80	--	0.60
AVE	0.409	8.7	78	93	--	1.00
			June and July 1992 Averaged			
MAX	0.572	9.1	160	175	--	1.20
MIN	0.263	8.2	62	80	--	0.55
AVE	0.404	8.7	83	99	--	0.95

Notes: MAX = Maximum  
 MIN = Minimum  
 AVE = Average  
 MGD = million gallons per day  
 mg/l = milligrams per liter  
 -- = none detected

Table 3.4-5. National Ambient Air Quality Standards

Pollutants	Averaging Time	National Standards <sup>(a)</sup>	
		Primary <sup>(b,c)</sup>	Secondary <sup>(b,d)</sup>
Ozone	1-hour	0.12 ppm (235 $\mu\text{g}/\text{m}^3$ )	Same
Carbon monoxide	8-hour	9 ppm (10 $\text{mg}/\text{m}^3$ )	None
	1-hour	35 ppm (40 $\text{mg}/\text{m}^3$ )	None
Nitrogen dioxide	Annual average	100 $\mu\text{g}/\text{m}^3$ (0.053 ppm)	Same
Sulfur dioxide	Annual average	80 $\mu\text{g}/\text{m}^3$ (0.03 ppm)	None
	24-hour	365 $\mu\text{g}/\text{m}^3$ (0.14 ppm)	None
	3-hour	None	1,300 $\mu\text{g}/\text{m}^3$ (0.5 ppm)
PM <sub>10</sub>	Annual	50 $\mu\text{g}/\text{m}^3$	Same
	24-hour	150 $\mu\text{g}/\text{m}^3$	Same
Lead	Quarter	1.5 $\mu\text{g}/\text{m}^3$	Same

- Notes:
- (a) National standards, other than for ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
- (b) Concentrations are expressed first in the units in which they were promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- (c) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- (d) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.
- ppm = parts per million.
- $\text{mg}/\text{m}^3$  = milligrams per cubic meter.
- PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter.
- Source: Clean Air Act, Title 42 U.S.C. Section 7401-7671.

environment was obtained from the Ohio EPA and Rickenbacker ANGB. Inventory data are separated by pollutant and reported in tons per year in order to describe the baseline conditions of pollutant emissions in the area.

Identifying the ROI for an air quality assessment requires knowledge of the pollutant types, source emission rates and release parameters, the proximity relationships of project emission sources to other emission sources, and local and regional meteorological conditions. For inert pollutants (all pollutants other than ozone, its precursors, and  $\text{NO}_2$ ), the ROI is generally limited to an area extending a few miles downwind from the source.

Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. Ozone precursors are mainly ( $\text{NO}_x$ ) and VOCs. VOCs are compounds containing carbon, excluding CO, carbon dioxide ( $\text{CO}_2$ ), carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate. By U.S. EPA regulatory definition, VOCs do not include methane or other nonreactive hydrocarbons such as methylene chloride.  $\text{NO}_x$  is the designation given to the groups of all oxygenated nitrogen species, including nitric oxide (NO),  $\text{NO}_2$ , nitrous oxide ( $\text{N}_2\text{O}$ ), nitric anhydride ( $\text{N}_2\text{O}_5$ ), nitrogen tetroxide ( $\text{N}_2\text{O}_4$ ), nitrogen trioxide ( $\text{NO}_3$ ), and nitrous anhydride ( $\text{N}_2\text{O}_3$ ). Although all of these compounds can exist in the air, only  $\text{N}_2\text{O}$ , NO, and  $\text{NO}_2$  are found in any appreciable quantities.

The ROI for ozone may extend much farther downwind than the ROI for inert pollutants. In the presence of solar radiation, the maximum effect of precursor emissions on ozone levels usually occurs several hours after they are emitted and, therefore, many miles from the source. Ozone and its precursors transported from other regions can also combine with local emissions to produce high local ozone concentrations. Ozone concentrations are generally the highest during the summer and coincide with periods of maximum solar radiation. Maximum ozone concentrations tend to be regionally distributed, because precursor emissions are homogeneously dispersed in the atmosphere.

Like ozone,  $\text{NO}_2$  emissions related to the Proposed Action and alternatives are also regionally distributed.  $\text{NO}_2$  is formed primarily by the conversion of NO to  $\text{NO}_2$  in the presence of oxygen (either during combustion or in the atmosphere). NO is produced by fuel combustion in both stationary and mobile sources such as automobiles and aircraft. The amount of production is dependent upon the combustion temperature and the rate of exhaust gas cooling. Higher temperatures and rapid cooling rates produce greater quantities of NO. Where higher NO concentrations and temperatures exist, some of the NO is immediately oxidized to  $\text{NO}_2$ . The amount of immediate  $\text{NO}_2$  combustion generation generally varies from 0.5 to 10 percent of the NO present (U.S. EPA, 1971). The remaining unconverted NO is oxidized to  $\text{NO}_2$  in the atmosphere primarily through photochemical secondary reactions initiated by the presence of sunlight. These secondary reactions may take place hours after the initial NO release and many miles from the original source, dependent upon the prevailing meteorological conditions.

For the purpose of this air quality analysis, the ROI for emissions of ozone precursors and  $\text{NO}_2$  from the reuse-related construction and operational activities would be the airshed surrounding Rickenbacker ANGB; i.e., Franklin County. Reuse-related emissions of VOC,  $\text{NO}_x$ , and  $\text{NO}_2$  are, therefore, compared to emissions generated within Franklin County. The ROI for the ambient air concentration of the inert pollutants ( $\text{CO}$ ,  $\text{SO}_2$ , and  $\text{PM}_{10}$ ) is limited

1 to the more immediate area of Rickenbacker ANGB (an area extending  
2 approximately 4 kilometers beyond the base boundary).

3 The CAA, as amended in August 1977 and November 1990, dictates that  
4 project emission sources must comply with the air quality standards and  
5 regulations that have been established by federal, state, and county regulatory  
6 agencies. These standards and regulations focus on (1) the maximum allowable  
7 ambient pollutant concentrations resulting from project emissions, both  
8 separately and combined with other surrounding sources, and (2) the maximum  
9 allowable emissions from the projects. No regulations contained in current Ohio  
10 air pollution control laws relate specifically to Rickenbacker ANGB operations,  
11 activities or sources.

12 Prior to the 1990 Amendments to the CAA, federal regulation of hazardous air  
13 emissions was very limited. Section 112, as amended in 1990, requires U.S.  
14 EPA to regulate a greatly expanded list of hazardous air pollutants (HAPs).  
15 Additionally, U.S. EPA must publish a list of all categories and subcategories of  
16 emission sources of HAPs. After identifying and listing sources of HAPs, U.S.  
17 EPA must promulgate emission standards that are equivalent to maximum  
18 achievable control technology (MACT). By the year 2000, most medium- and  
19 large-sized sources of HAPs can expect final U.S. EPA regulations that will  
20 control HAP emissions and require adoption of costly control measures.

21 Mobile pollutant sources such as military aircraft are presently exempt from  
22 formal regulatory considerations. However, in order to present a thorough  
23 analysis of the proposed actions at Rickenbacker ANGB, a net contribution of  
24 aircraft emissions can be calculated for comparison with comparable area  
25 emissions inventories required by the EPA. Air traffic and resultant aircraft  
26 emissions are greatest in the area of the Rickenbacker ANGB runway complex.  
27 From considerations of both approach and departure routes for Rickenbacker  
28 ANGB, the ROI assessed for aircraft emissions contributions has been  
29 structured as a circular area extending 10 nautical miles (NM) from the center of  
30 the runway complex, and from the surface to 3,000 feet above ground level  
31 (AGL).

32 For consideration of the aircraft types formerly based at Rickenbacker ANGB  
33 and those projected to continue operations following realignment, the 10-NM  
34 distance corresponds to a major air traffic arrival/departure routing feature. The  
35 10-NM radius also defines a circular area that closely approximates the size of  
36 Franklin County, which contains the Columbus urbanized area. Comparisons  
37 can thus be made between a year's calculated air traffic emissions in the ROI  
38 and Franklin County's area source emissions reported by the Ohio EPA for the  
39 same length of time.

40 The ceiling of 3,000 feet AGL was chosen because such an altitude is a  
41 conservative estimate for an average height of the stable atmospheric inversion  
42 commonly found with major air masses over central Ohio. Such an inversion  
43 actually varies between 1,000 and 5,000 feet AGL and can significantly inhibit, if  
44 not effectively block, vertical mixing and dispersion of air pollutants. With  
45 involvement of an inversion, pollutants can be considered confined between the  
46 base of the inversion and the ground, or that portion of the atmosphere  
47 commonly termed the boundary layer.

**3.4.3.1 Regional Air Quality.** Rickenbacker ANGB is located in central Ohio and lies in a slight depression on a landfilled marsh in a north-south oriented valley. Cultivated farmland surrounds the base. The Columbus metropolitan area begins about 6 miles north of the base. Terrain to the west of Rickenbacker ANGB is gently rolling, but becomes significantly rougher 35 miles to the east in the western foothills of the central Appalachian Mountains. The main spine of the Appalachians is located about 200 miles east through southeast. The closest major moisture source is Lake Erie, approximately 115 miles northeast of Rickenbacker ANGB. The other Great Lakes are all further than 230 miles from Rickenbacker ANGB and do not significantly affect the local weather. Two branches of Little Walnut Creek flow on both the east and west sides of the base and the Scioto River is located about 4 miles west. There is no evidence of these streams affecting local weather conditions.

The shallow, U-shaped valley in which Rickenbacker ANGB is situated, along with the generally marshy land surrounding the base and its low-lying location, all combine to enhance occurrences of fog and low stratus under stable air mass conditions. Under calm or light-and-variable wind conditions, air drainage occurs from the higher terrain found east, south and west of Rickenbacker ANGB. According to the current Terminal Forecast Reference Notebook for Operating Location A, Detachment 26, 26th Weather Squadron of the U.S. Air Force's Air Weather Service (which provides operational weather support at Rickenbacker ANGB), studies have indicated that the most frequent air drainage in the vicinity of Columbus, Ohio, and Rickenbacker ANGB is to the northwest, resulting in a very light southeasterly surface wind. This can result in a trapped pool of cool air over the base, and, with the addition of moisture from the surrounding farmland and marshy soil, the development of radiation fog. The winds are the lightest from June into September and the summer has the highest frequency of poor visibility due to radiation fog.

Another local consideration is the "lake effect" from Lake Erie. Cold winds over the lake from the north-northeast through east-northeast with speeds in excess of 20 knots can bring a stratocumulus cloud layer into central Ohio with ceilings predominantly around 2,500 feet AGL and light precipitation. When accompanied with sufficient moisture, such a system can produce significant snowfall, but lake effect alone will usually not produce more than a one-half inch accumulation.

The third significant local consideration is a widespread downslope circulation condition produced by the Appalachian Mountains. Though the actual main ridgeline of the Appalachians is about 200 miles southeast of Rickenbacker ANGB, the mountains can have an abrupt barrier effect on low ceilings and visibilities resulting from surface low-pressure systems that have moved south of Rickenbacker ANGB before crossing the mountains and moving eastward over the Piedmont. This downslope effect is also enough to modify weather received from strong hurricanes moving up the Atlantic seaboard.

Winter is the season of greatest weather variability at Rickenbacker ANGB, although the Ohio Valley is not nearly as susceptible to the dramatic changes in weather that areas westward in the upper Mississippi Valley or to the east over the mountains and along the Piedmont east of the Appalachians can experience. The most frequently found air mass over Ohio from October through Mid-March is typically dry, cold and slightly stagnant.

Wind speeds are generally on the rise in March and April. Weak frontal systems move rapidly through the Ohio Valley during spring, and the increasing north-



1 south temperature gradient results in wind speeds higher than at any other time  
2 of year.

3 May through early June is the period when Rickenbacker ANGB experiences  
4 maximum thunderstorm activity, increasingly associated with the passage of  
5 weak cold fronts and squall lines. At this time of the year and throughout the  
6 summer, tropical air mass characteristics become prevalent, with increasing  
7 episodes of recirculation and pollution containment associated with the  
8 dominating Bermuda High.

9 Autumn can have a mix of both summer and winter-like weather patterns, but  
10 conditions are dominated by dry, stable air-masses pushing the humid, stable air  
11 associated with the Bermuda High back southward and eastward again. Also  
12 having an impact on central Ohio's meteorology during early fall are hurricanes  
13 from Caribbean or Atlantic waters with resultant landfall along the Gulf Coast.  
14 Late in autumn, between cold fronts and dry air-masses, the stagnant and humid  
15 tropical conditions associated with the Bermuda High can return to cause a  
16 widespread containment condition capped by a strong inversion normally formed  
17 somewhere between about 3,000 to 5,000 feet AGL.

18 According to U.S. EPA guidelines, an area with air quality better than the  
19 NAAQS is designated as being in attainment; areas with worse air quality are  
20 classified as nonattainment areas. The NAAQS, other than for ozone and those  
21 based on annual averages or annual arithmetic means, are considered to be in  
22 attainment if they are not exceeded more than once a year. The ozone standard  
23 is attained when the expected number of days per calendar year with maximum  
24 hourly concentration above the standard is equal to or less than one. Pollutants  
25 in an area may be designated as unclassified when there is a lack of data for the  
26 U.S. EPA to form a basis of attainment status. An area designated as  
27 unclassified is assumed to be in attainment.

28 Franklin County at present is formally designated as a Marginal Area for ozone  
29 nonattainment (Federal Register Vol. 56, 56813). The U.S. EPA's nomenclature  
30 of marginal is based on a monitored design value from 0.121 ppm up to (but not  
31 including) 0.138 ppm (Federal Register Vol. 56, 56696). A design value is  
32 established from valid O<sub>3</sub> monitoring data from 1988 through 1989. However,  
33 based on more recent monitoring data, which indicate the ozone standard is no  
34 longer being exceeded, and projections of decreased VOC emissions in future  
35 years, a formal application for redesignation of the area to attainment has been  
36 submitted to the U.S. EPA (MORPC, 1993).

37 Franklin County is presently designated as unclassified/attainment for CO and  
38 PM<sub>10</sub>, meaning that monitoring data are not yet sufficient for determination of  
39 attainment/nonattainment status. Franklin County is designated attainment for  
40 SO<sub>2</sub> and NO<sub>2</sub>.

41 With the relatively higher population density and industrial activities of the  
42 Columbus urbanized area, the Ohio EPA's Columbus Intrastate Air Quality  
43 Control Region has a number of State and Local Air Monitoring Stations  
44 (SLAMS) established in Franklin County, primarily in the central downtown  
45 portion and on the north (or prevailing downwind) side of Columbus, varying  
46 between 11 and 18 miles away from Rickenbacker ANGB. Maximum ambient  
47 pollutant concentrations monitored at these SLAMS locations from 1989 through  
48 1993 are shown in Table 3.4-6 (Ohio EPA, 1994). Concentrations representative  
49 of average ambient conditions in the area are provided in Table 3.4-7.

**Table 3.4-6. Ambient Air Pollutant Levels Monitored  
in Proximity to Rickenbacker ANGB During 1987-1991**

Pollutant	Monitoring Station	Averaging Time	Units	Maximum Value by Year <sup>(a)</sup>				
				1989	1990	1991	1992	1993
CO	Columbus <sup>(b)</sup>	1-hour	ppm	13.0	13.0	15.0	15.9	8.9
		8-hour	ppm	6.9	5.1	6.6	9.1	7.1
O <sub>3</sub>	Columbus <sup>(b)</sup>	1-hour	ppm	.111	*.128	*.131	0.93	.109
SO <sub>2</sub>	Columbus <sup>(b)</sup>	Annual	µg/m <sup>3</sup>	27	20	22	18	19
		24-hour	µg/m <sup>3</sup>	132	158	107	97	96
		3-hour	µg/m <sup>3</sup>	247	247	222	233	253
PM <sub>10</sub>	Columbus <sup>(b)</sup>	Annual	mg/m <sup>3</sup>	50	35	33	30	29
		24-hour	µg/m <sup>3</sup>	107	104	89	81	99

Notes: <sup>(a)</sup> From a 1994 Quick-Look Processing Summary Report provided by the Ohio EPA.

<sup>(b)</sup> There are up to 13 monitoring stations in the Columbus, Ohio, urbanized area. The highest reported pollutant level monitored at these stations on an annual basis is included in this table.

\* Exceeds the NAAQS Primary Standard.

**Table 3.4-7. Ambient Background Air Quality Concentration in the Area of  
Rickenbacker ANGB**

Pollutant	Averaging Time	Background Concentration <sup>(a)</sup>
CO	8-Hour	6.1 ppm
	1-Hour	8.6 ppm
O <sub>3</sub>	1-Hour	0.93 ppm
SO <sub>x</sub> <sup>(b)</sup>	Annual	17 µg/m <sup>3</sup>
	24-Hour	93 µg/m <sup>3</sup>
	3-Hour	233 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual	25 µg/m <sup>3</sup>
	24-Hour	81 µg/m <sup>3</sup>

Notes: <sup>(a)</sup> Estimates of background concentration provided by the Ohio EPA (personal communication, Engler, 1994). Estimates of background concentration not available for nitrogen dioxide.

<sup>(b)</sup> Reported as sulfur dioxide.

µg/m<sup>3</sup> = micrograms per cubic meter.

PM<sub>10</sub> = particulate matter equal to or less than 10 microns in diameter.

ppm = parts per million.

Major new or modified stationary sources in the area of Rickenbacker ANGB are subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without significant adverse deterioration of the clean air in the area. Emissions from any new or modified source must be controlled using Best Available Control Technology. The air quality impacts in combination with other PSD sources in the area must not exceed the maximum allowable incremental increases identified in Table 3.4-8.

Certain national parks and wilderness areas are designated as Class I areas, where any appreciable deterioration in air quality is considered significant. Class II areas are those where moderate, well-controlled industrial growth could be permitted. Class III areas allow for greater industrial development. No PSD

Class I areas have been identified within 50 miles of Rickenbacker ANGB. All of the surrounding area is designated by the U.S. EPA as Class II.

**Table 3.4-8. Maximum Allowable Pollutant Concentration Increases Under PSD Regulations**

Pollutant	Averaging Time	Maximum Allowable Increment ( $\mu\text{g}/\text{m}^3$ )		
		Class 1	Class II	Class III
PM <sub>10</sub>	Annual	4	17	34
	24-Hour	8	30	60
Sulfur dioxide	Annual	2	20	40
	24-Hour	5	91	182
	3-Hour	25	512	700
Nitrogen dioxide	Annual	2.5	25	50

Notes: Class I areas are regions in which the air quality is intended to be kept pristine, such as national parks and wilderness areas. All other lands are initially designated Class II. Individual states have the authority to redesignate Class II lands to Class III to allow for maximum industrial use.

$\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.

Source: 40 CFR § 51 and 52, as revised June 3, 1993.

In addition, under the New Source Review provisions of the CAA, any new or modified major source emitting more than 100 tons per year of VOC or NO<sub>x</sub> in a marginal ozone nonattainment area must satisfy technology standards reflecting the lowest achievable emission rates (LAER), and must provide offsets representing emission reductions from other sources in the area at a ratio of at least 1.1 to 1.0.

Also, regulations are pending under Title V of the CAA that would require a federal permit for any of the following sources:

- A source that has the potential to emit 10 tons or more of a single HAP in a 1-year period.
- A source that has the potential to emit a total of 25 tons or more of HAPs in a 1-year period.
- A source that has the potential to emit 100 tons or more of any criteria pollutant in a 1-year period.
- A source that is required to meet New Source Performance Standards.
- A source that is located in a nonattainment area.

The permitting authority must notify a state if one of the above sources is within 50 miles of that state or could affect the air quality of that state. The affected states then have the opportunity to make recommendations concerning the terms and conditions of the permit that would be issued to the source.

**Pre-Realignment Reference.** Pre-realignment pollutant concentrations due to aircraft emissions in the immediate area of the base runways were estimated

with the Emission and Dispersion Modeling System (EDMS). The results of the EDMS modeling are provided in Table 3.4-9. The values in Table 3.4-9 represent the maximum concentrations that occurred at a receptor located 940 feet from the northeast end of runway 05R/23L as a result of aircraft operations in 1992. The year 1992 aircraft operation data are assumed to be representative of pre-realignment conditions in 1991.

**Table 3.4-9. Air Quality Modeling Results for the Pre-Realignment Conditions in the Vicinity of the Runways at Rickenbacker ANGB ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	Averaging Time	Maximum Impact <sup>(a)</sup> ( $\mu\text{g}/\text{m}^3$ )	Background Concentration <sup>(b)</sup> ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
PM <sub>10</sub>	Annual	11	25	50
	24-hour	44	81	150
SO <sub>2</sub>	Annual	9	17	80
	24-hour	36	93	365
	3-hour	91	233	1,300
CO	8-hour	973	7,075	10,000
	1-hour	1,390	9,975	40,000

Notes: <sup>(a)</sup> Projected pollutant concentrations determined from EDMS modeling results.

<sup>(b)</sup> Background concentrations provided by Ohio EPA (personal communication, Engler, 1994).

**Realignment Baseline.** It can be reasonably assumed that pollutant concentrations at base realignment would be similar to, although somewhat less than, concentrations experienced under pre-realignment conditions. This decrease results from the relocation of the 907 AG to Wright-Patterson AFB in 1993 with the associated decrease in aircraft operations and aerospace ground activity. The relocation also reduced the number of motor vehicles operating in the surrounding area.

### 3.4.3.2 Air Pollutant Emission Sources.

**Pre-Realignment Reference.** With the exception of aircraft operation emissions, the base emissions contained in Table 3.4-10 are based on Air Force calculations for direct sources within the base boundary. Aircraft operation emissions were estimated with the EDMS model. The majority of emissions associated with base activities is produced by aircraft and motor vehicles. Except for CO, the highest contribution of emissions comes from aircraft operations (such as flight and taxiing) and aircraft ground support equipment. The emissions shown in Table 3.4-10 are representative of pre-realignment year 1991. Also shown in Table 3.4-10 are 1985 and 1990 area-source and 1990 mobile-source and point-source emissions for Franklin County (National Emissions Data System, Ohio EPA). No area-source emissions reports are available for years later than 1985 for CO, PM<sub>10</sub>, and SO<sub>2</sub>.

Although the Rickenbacker ANGB emission inventory shown in Table 3.4-10 provides a pre-realignment reference to on-base emissions, the inventory does not consider off-base air emissions from indirect sources related to Rickenbacker ANGB. In addition, it is difficult to compare the inventory data presented in Table 3.4-10 to the emissions from future reuse scenarios that

require calculation by different forecasting methodologies for direct and indirect emissions. Therefore, Table 3.4-11 provides the total base-related air emissions associated with both direct and indirect sources calculated using the same forecasting methods applied to the reuse alternatives. Appendix I describes the consistent methodology used to calculate pre-realignment direct and indirect emissions for direct comparison with projected reuse-related emissions.

**Table 3.4-10. Pre-Realignment Emissions Inventory Compared with Latest Available Franklin County Area and Point Source Emissions (tons/year)**

Source	CO	VOC	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>2</sub>
Rickenbacker ANGB <sup>(a)</sup>					
Aircraft operations <sup>(b)</sup>	1,222.44	925.37	375.22	34.15	28.21
Engine ground runups	13.53	9.69	3.72	.67	1.14
Aircraft support equipment	27.17	5.54	76.01	5.43	1.27
Motor vehicles					
(military only)	1,446.96	254.46	149.69	18.96	8.48
Heating and power production	.010	.003	.050	.004	.0003
Fueling operations					
(tank farm and gas station)	0	29.94	0	0	0
Surface coating	0	2.08	0	0	0
Subtotal	2,710.11	1,227.08	601.69	59.21	39.10
Latest Reported Franklin County Inventories <sup>(c)</sup>	195,301	57,737	49,107	23,245	9,596

Notes:

<sup>(a)</sup> Source: Rickenbacker ANGB Air Pollution Emission Inventory, (Ohio ANG, 1991).

<sup>(b)</sup> Aircraft operation emissions estimated with the EDMS model.

<sup>(c)</sup> Totals for VOC and NO<sub>x</sub> are comprised of 1990 area-source inventories (the latest year for which such estimations have been released) and 1990 mobile-source and point-source inventories (the latest year's figures available from the Ohio EPA Emissions Inventory System). The total for CO is comprised of 1985 area-source inventory data (the latest year available) and 1990 mobile- and point-source inventory data. Totals for PM<sub>10</sub> and SO<sub>2</sub> are comprised of 1985 area- and mobile-source data and 1990 point-source data.

**Table 3.4-11. Total Base-Related Emissions from Direct and Indirect Sources (tons/year)**

Source	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>
Pre-realignment (1991)	1,576	857	3,139	123	261
Realignment (1994)	1,127	672	2,558	86	155

**Realignment Baseline.** The base-related emissions for Rickenbacker ANGB at base realignment in 1994 were estimated by calculating the direct and indirect emissions associated with only the operating location and retained military activities (Table 3.4-11). The reduction in base-related emissions from pre-realignment conditions reflects the loss of both direct and indirect sources due to reduced on-base activities, reduced heating and power requirements, and the reduction in the direct and indirect population associated with Rickenbacker ANGB at the time of realignment.

#### 3.4.4 Noise

An ROI is defined to establish a consistent basis for reporting background information. Two primary criteria are used in defining the ROI: (1) the present and future average day/night sound level (DNL) 65 noise contours; and (2) major noise complaint areas and areas of official concern including areas with high growth rates and areas that may be affected by the alteration of aircraft flight tracks.

The ROI includes nearly 60 square miles in Franklin and Pickaway counties. The area includes all, or portions of, the villages of Lockbourne, Groveport, and Canal Winchester. The area also includes portions of Harrison, Scioto, and Madison townships.

The characteristics of sound include parameters such as amplitude, frequency, and duration. Sound can vary over an extremely large range of amplitudes. The dB, a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit measurement of sound. Table 3.4-12 present examples of typical sound levels. Different sounds may have different frequency contents. When measuring sound to determine its effects on a human population, A-weighted sound levels (dBA) are typically used to account for the response of the human ear. A-weighted sound levels represent adjusted sound levels.

The adjustments, established by the American National Standards Institute ([ANSI] SI.4 1983), are applied to the frequency content of the sound.

Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying. Noise levels often change with time; therefore, to compare levels over different time periods, several descriptors were developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various effects of noise on man and animals, including land-use compatibility, sleep interference, annoyance, hearing loss, speech interference, and startle effects.

The day-night average sound level (DNL) was developed to evaluate the total community noise environment. DNL (sometimes abbreviated as  $L_{dn}$ ) is the average A-weighted acoustical energy during a 24-hour period with a 10 dB adjustment added to the night-time levels (between 10 p.m. and 7 a.m.). This adjustment is an effort to account for the increased sensitivity to nighttime noise events. DNL was endorsed by the EPA for use by federal agencies and has been adopted by HUD, FAA, and DOD.

DNL is an accepted unit for quantifying human annoyance to general environmental noise, which includes aircraft noise. The Federal Interagency Committee on Urban Noise developed land-use compatibility guidelines for noise in terms of DNL (U.S. DOT, 1985). Table 3.4-13 provides FAA-recommended DNL ranges for various land use categories based upon the committee's guidelines. The FAA guidelines were used in this study to determine noise impacts.

1

Table 3.4-12. Comparative Sound Levels

Common Outdoor Noise Levels	Noise Level (dB)	Common Indoor Noise Levels
	110	Rock Band
Jet Flyover at 1,000 ft		
	100	Inside Subway Train (New York)
Gas Lawnmower at 3 ft		
	90	
Diesel Truck at 50 ft		Food Blender at 3 ft
Noisy Urban Daytime		Garbage Disposal at 3 ft
	80	
		Shouting at 3 ft
Gas Lawnmower at 100 ft		Vacuum Cleaner at 10 ft
	70	
Commercial Area		Normal Speech at 3 ft
Heavy Traffic at 300 ft		
	60	
		Large Business Office
		Dishwasher Next Room
	50	
Quiet Urban Nighttime		Small Theater, Large Conference Room (Background)
	40	
Quiet Suburban Nighttime		Library
	30	
		Bedroom at Night
Quiet Rural Nighttime		Concert Hall (Background)
	20	
	10	Broadcast and Recording Studio
	0	Threshold of Hearing

2

**Table 3.4-13. Land Use Compatibility with Yearly Day-Night Average Sound Levels**  
**Page 1 of 2**

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
<b>Residential</b>						
Residential, other than mobile homes and transient lodgings	Y	N(a)	N(a)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(a)	N(a)	N(a)	N	N
<b>Public Use</b>						
Schools	Y	N(a)	N(a)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(b)	Y(c)	Y(d)	Y(d)
Parking	Y	Y	Y(b)	Y(c)	Y(d)	N
<b>Commercial Use</b>						
Offices, business, and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware, and farm equipment	Y	Y	Y(b)	Y(c)	Y(d)	N
Retail trade -- general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(b)	Y(c)	Y(d)	N
Communication	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing, general	Y	Y	Y(b)	Y(d)	Y(d)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(f)	Y(g)	Y(h)	Y(h)	Y(h)
Livestock farming and breeding	Y	Y(f)	Y(g)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports	Y	Y(e)	Y(e)	N	N	N
Outdoor, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N



**Table 3.4-13. Land Use Compatibility with Yearly Day-Night Average Sound Levels**  
**Page 2 of 2**

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key	
Y (Yes)	Land use and related structures compatible without restrictions.
N (No)	Land use and related structures are not compatible and should be prohibited.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve Noise Level Reduction (NLR) of 25, 30, or 35 dB must be incorporated into design and construction of structure.
Notes:	
(a)	Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide an NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(b)	Measures to achieve an NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.
(c)	Measures to achieve an NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
(d)	Measures to achieve an NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
(e)	Land use compatible provided special sound reinforcement systems are installed.
(f)	Residential buildings require an NLR of 25 dB.
(g)	Residential buildings require an NLR of 30 dB.
(h)	Residential buildings not permitted.

Source: Derived from FAR Part 150 Airport Noise Compatibility Planning (FAA, 1989).

DNL is used in this report because it is the noise descriptor recognized by the FAA and Air Force for airfield environments. DNL is sometimes supplemented with other metrics, primarily the equivalent sound level ( $L_{eq}$ ). The  $L_{eq}$  is the equivalent, steady-state level that would contain the same acoustical energy as the time-varying level during the same time interval. Occasionally, the Sound Exposure Level (SEL) is used to supplement DNL, especially where sleep disturbance is a concern. The SEL value represents the A-weighted sound level integrated over the entire duration of the noise event and referenced to a duration of 1 second. When an event lasts longer than 1 second, the SEL value will be higher than the highest sound level during the event. SEL is used in this report when discussing sleep disturbance effects.

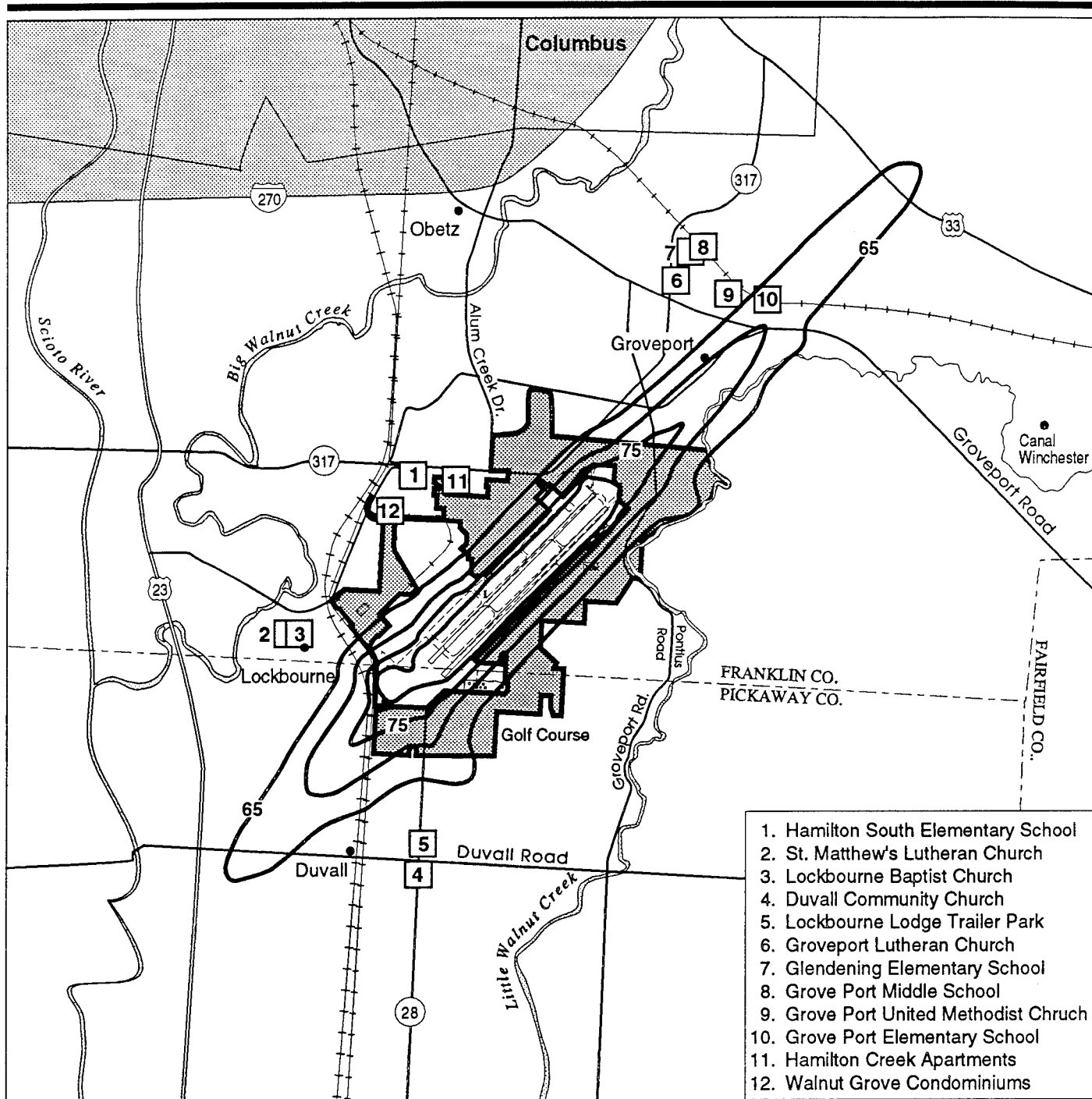
Appendix H provides additional information about the measurement and prediction of noise. This appendix also provides more information on the units used in describing noise, as well as information about the effects of noise such as annoyance, sleep interference, speech interference, health effects, and effects on animals.

**3.4.4.1 Existing Noise Levels.** Typical noise sources in and around airfields usually include aircraft, surface traffic, and other human activities. Military (and civilian) aircraft operations are the existing primary sources of noise in the vicinity of Rickenbacker ANGB. In airport analyses, areas with DNL above 65 dB are often considered in land-use compatibility planning and impact assessment; therefore, the contours of DNL greater than 65 dB are of particular interest. Contours above DNL 65 dB are presented in 5 dB intervals.

**Pre-Realignment Reference.** Aircraft noise at Rickenbacker ANGB occurs during aircraft engine warmup, maintenance and testing, taxiings, takeoffs, approaches, and landings. Noise contours for pre-realignment aircraft operations were modeled using information on aircraft types; runway use; runway locations; takeoff and landing flight tracks; aircraft altitude, speeds, and engine power settings; and number of daytime (7 a.m. to 10 p.m.) and night-time (10 p.m. to 7 a.m.) operations. The noise contours for 1991 are shown in Figure 3.4--4. Only those contours equal to or above DNL 65 are shown.

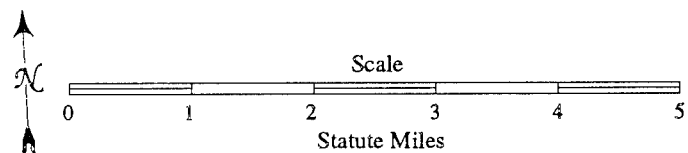
Approximately 80 percent of all military operations use 23L/05R, the outside runway. Federal Express utilizes 05L/23R for 90 percent of their arrivals and uses 23L/05R for 96 percent of their departures.

The Air Force NOISEMAP methodology was used to prepare noise contours to represent pre-realignment reference conditions for military and civilian aircraft operations at Rickenbacker ANGB. The resulting noise exposure estimates are expressed in terms of  $L_{dn}$  noise contours. This methodology considers the effect of an aircraft single event (type of aircraft, altitudes, and air speeds), how many times that event occurs during a 24-hour period, and the time of day that it occurs. The  $L_{dn}$  value represents the 24-hour average sound level, in decibels, for the period from midnight to midnight. An additional 10-dB penalty is added for operations that occur between 10 p.m. and 7 a.m. This penalty is added because it is during this period that most people report to be more annoyed by any type of noise. In formulating the noise contours, NOISEMAP uses the following data: aircraft type, arrival and departure schedules, runway utilization patterns, engine thrust (power settings), altitude profiles, flight track locations, number of operations per flight track, and engine run-up (ground testing).



#### EXPLANATION

- Noise Contour
- Rickenbacker Air National Guard Base Boundary
- ▨ Rickenbacker Port Authority Boundary
- ▤ City of Columbus



#### Pre-Realignment Aircraft Noise Contours

Figure 3.4-4

The noise contours generated from NOISEMAP for the level of all pre-realignment reference aircraft activity (both military and civilian) are shown in Figure 3.4-4. These contours define noise contribution areas adjacent to the airfield. As aircraft leave the base and gain altitude, their noise contribution drops to indistinguishable levels. The contours show  $L_{dn}$  values of 65, 70, 75, 80, and 85 dBA. These differing contours assist in identifying the different levels of people's reactions to noise. The contours also may be used as guidelines for zoning by local communities. HUD considers  $L_{dn}$  levels below 65 dBA to be compatible with residential land use. Residential development of areas with  $L_{dn}$  levels between 65 and 75 dBA is discouraged and is considered unacceptable for areas in which the noise level is 75 dBA or higher.

**Realignment Baseline.** Contributions to noise in the vicinity of Rickenbacker ANGB following the proposed relocation of the AFRES unit were modeled by removing applicable flight operations from the BASEOPS data preprocessor and rerunning NOISEMAP. Figure 3.4-5 shows the modeled noise contours in 1994 resulting from commercial flight operations managed by the RPA, the two ANG units of KC-135Rs and the Ohio National Guard helicopters remaining at the facility.

Detailed information on the aircraft operations associated with these noise levels is contained in Appendix H.

**3.4.4.2 Noise-Sensitive Areas.** The pre-realignment ROI for Rickenbacker ANGB includes noise-sensitive receptors such as the Groveport-Madison Elementary School and the Groveport Freshman School that are within the DNL 65 dB contour. The modeled contours (see Figure 3.4-4) indicate that there were 2,748 acres exposed to DNL 65 or greater in and around Rickenbacker ANGB. This includes 1,489 acres in the region between DNL 65 and 70, and 580 acres in the region between DNL 70 and 75. Section 3.2.2, Land Use and Aesthetics, describes land uses on and near the base.

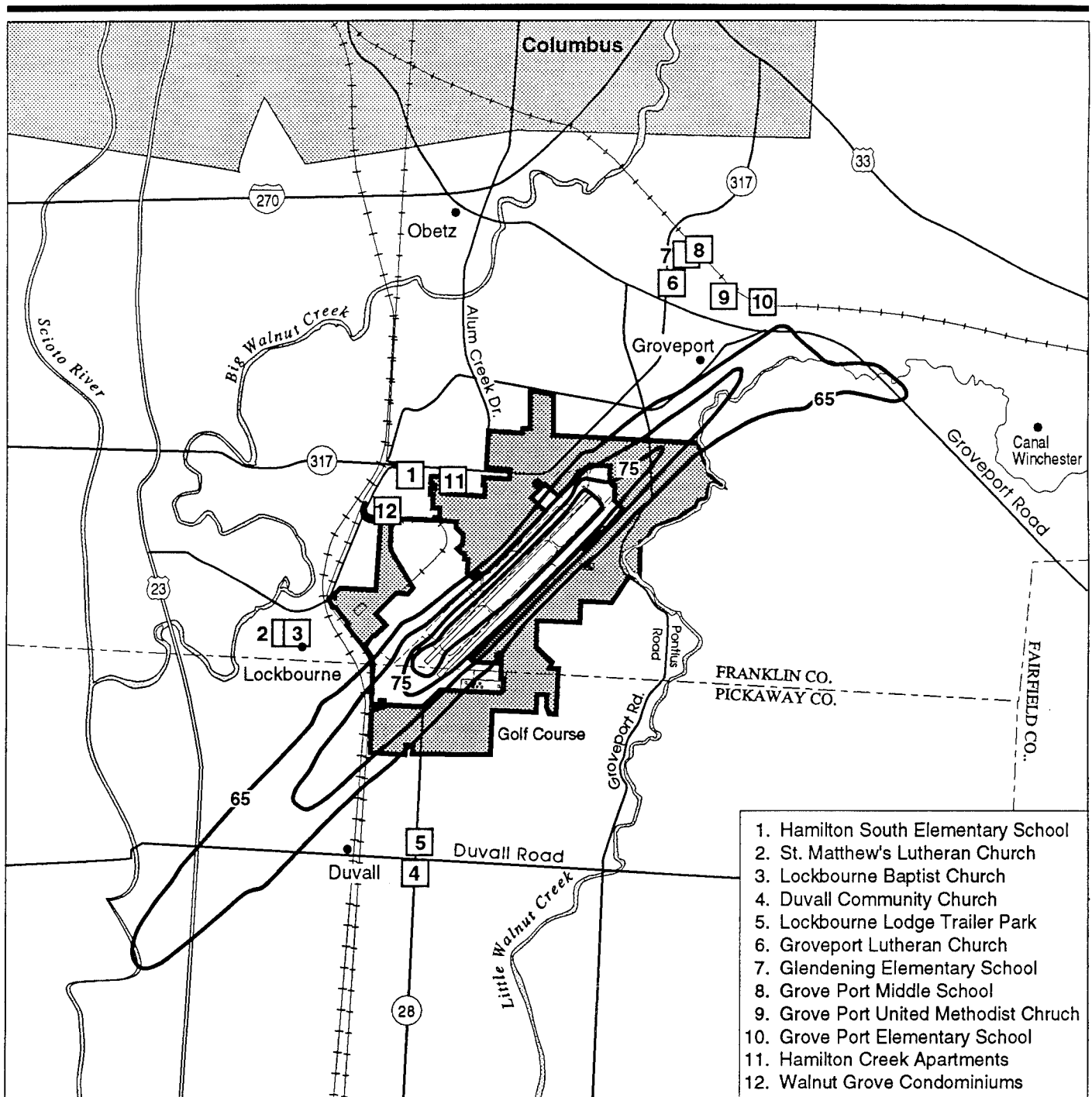
### 3.4.5 Biological Resources.

Biological resources include the native and introduced plants and animals in the project area. For discussion purposes, these are divided into vegetation, wildlife (including aquatic biota), threatened or endangered species, and sensitive habitats. Appendix L lists the species name (both common and scientific) of species found on Rickenbacker ANGB.

Human activities in the immediate vicinity of the base have altered the natural environment primarily through urbanization. Rickenbacker ANGB is located in an urbanized area south of Columbus, Ohio. Approximately 90 percent of the area has been modified to lawns, buildings, parking areas, and other developments. The remaining undeveloped areas are found along river corridors. These areas provide for riparian habitat but are not entirely pristine.

The ROI for biological resources includes the area within the boundaries of the base. This ROI includes the area within which potential impacts could occur and provides a basis for evaluating the level of impacts.

**3.4.5.1 Vegetation.** For this analysis, vegetation includes all terrestrial and aquatic plants and plant communities with the exception of rare plants. Section 3.4.5.3 describes rare plants. Most of the base areas not occupied by buildings or pavement are covered by lawn of a 40:60 mixture of Kentucky fescue

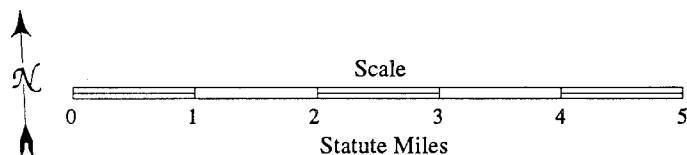


# EXPLANATION

- Noise Contour
- - - Rickenbacker Air National Guard Base Boundary
- ▬ Rickenbacker Port Authority Boundary
- ▨ City of Columbus

## Realignment Baseline Noise Contours

Figure 3.4-5



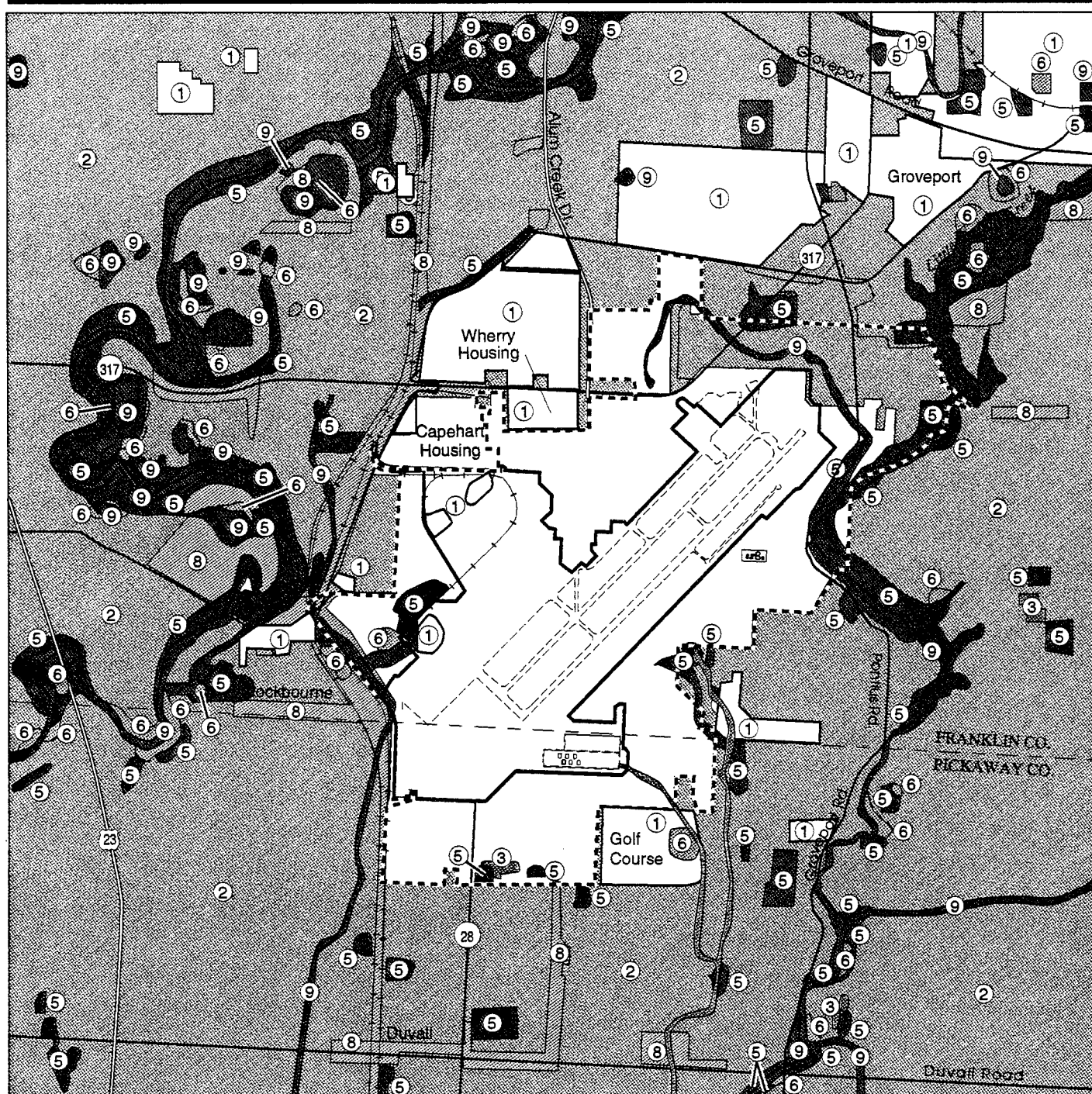
(*Festuca* sp.) and Kentucky bluegrass (*Poa* sp.) that is mowed during the growing season (Figure 3.4-6). Two rivers border the base on the east and west side, providing some riparian and aquatic vegetation. There are small wooded areas at the southwest, south, and east sides of the base composed of a variety of hardwood trees, including sugar maple (*Acer saccharimon*), ash (*Fraxinus* spp.), elm (*Ulnus americana*), oak (*Quercus* spp.), cottonwood (*Populus deltoides*), apple (*Pyrus* spp.) and black walnut (*Juglans nigra*). Agricultural crops and open fields are also found in the vicinity of the base. Appendix L lists the plant species found in the ROI by habitat (i.e., forest, agricultural, etc.).

**3.4.5.2 Wildlife.** There is a limited variety of wildlife habitat on and near the base. The area in which the base is located is flat to gently rolling with no mountains or large hills. There are a few small wetlands and two rivers bordering the base that provide limited riparian vegetation and aquatic habitat. Although the variety of habitat is limited, the number of species found in this area is quite large. Appendix L lists the birds, mammals, reptiles, amphibians, insects, fish, and macroinvertebrates that are known or likely to occur on base.

Few of the wildlife found in the area occur in large numbers. White-tailed deer (*Odocoileus virginianus*) are transient visitors to the base and occasionally must be chased off the runways so planes can land. Several species of predatory birds have been observed on base, including red-tailed hawks (*Buteo jamaicensis*), rough-legged hawks (*Buteo lagopus*), American kestrel (*Falco sparverius*), great horned owls (*Bubo virginianus*), barn owls (*Tyto alba*), and screech owls (*Otus asio*). None of these species are resident on base due to lack of nesting habitat. Many species of game birds, song birds, small game, and nongame animals have been observed on base, but limited habitat and human activity on the base preclude any substantial populations.

**3.4.5.3 Threatened and Endangered Species.** Under Section 7 consultation with the U. S. Fish and Wildlife Service (USFWS) it was found that the Rickenbacker ANGB is within the range of five federally endangered species (Kroonemeyer, 1994). Those species are Indiana bat (*Myotis sodalis*), peregrine falcon (*Falco peregrinus*), scioto madtom (a fish, *Noturus trautmani*), clubshell mussel (*Pleurobema clava*), and northern riffleshell mussel (*Epioblasma torulosa rangiana*). Although action is not required for candidate species, the following category 2 candidates are within the range of the Rickenbacker ANGB: loggerhead shrike (*Lanius ludovicianus*), paddlefish (*Polydon spathula*), tall larkspur (*Delphinium exaltatum*), snuffbox (a mussel, *Epioblasma triquetra*), rayed bean (a mussel, *Villosa fabalis*), and salamander (a mussel, *Simpsonaias ambigua*). Although not identified by the USFWS in the 1994 correspondence, the federally threatened upland sandpiper (*Bartramia longicauda*), was identified by the Ohio Department of Natural Resources (ODNR) as occurring in the study area (Woischke, 1994). The ODNR also identified state endangered species including the elephant-ear (*Elliptio crassidens crassidens*), washboard (*Magnonaias nervosa*), and clubshell mussel and rayed bean, which also have federal protection (see above). There is one state threatened species, snuffbox (see above for federal status). Three fish species were also noted: shortnose gar (*Lepisosteus platostomus*), slenderhead darter (*Percina phoxocephala*), and river redhorse (*Moxostoma carinatum*), which are special interest species.

The upland sandpiper was known to occur northwest of Rickenbacker ANGB. However, this species has not been found on the base as it is currently configured. The occurrence location is between the north end of the runway and the former Wherry Housing units. The river redhorse and slenderhead darter are



#### EXPLANATION

- |   |             |
|---|-------------|
| ① | Landscaped  |
| ② | Agriculture |
| ③ | Grassland   |
| ④ | Shrubland   |
| ⑤ | Forest      |
| ⑥ | Swamp Marsh |

- |       |                                      |
|-------|--------------------------------------|
| ⑦     | Tundra                               |
| ⑧     | Barren                               |
| ⑨     | Water                                |
| —     | Rickenbacker ANGB Boundary           |
| - - - | Rickenbacker Port Authority Boundary |

#### Vegetation Distribution

Figure 3.4-6

found in Big Walnut Creek about 1/2-mile directly west of the base. The washboard, elephant-ear, and clubshell mollusks are found along Big Walnut Creek between Hamilton Meadows and Obetz upstream of the base. This stretch of the river is located about 2 miles north of the base. The ODNR reports that there are no records of rare plants or rare breeding or non-breeding animal concentrations in the vicinity.

**3.4.5.4 Sensitive Habitats.** Sensitive habitats include wetlands and plant communities that are unusual, limited in distribution, or important seasonal use areas for wildlife (e.g., migration routes, breeding areas, or crucial summer/winter habitat).

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (U.S. Army Corp of Engineers, 1987). Areas that are periodically wet but do not meet all three criteria (hydric vegetation, hydric soils, and wetland hydrology) are not jurisdictional wetlands subject to Section 404 of the federal Clean Water Act. Areas that have been disturbed or that are classified as problem area wetlands, however, may not meet all three criteria as a result of natural or man-induced causes, yet are still considered wetlands.

The base has few sensitive habitats, because it is located within a developed setting dominated by runways, parking areas, other facilities, and lawns. The wooded areas, riparian areas associated with Big Walnut Creek, and the wetland areas provide wildlife habitat within the otherwise highly developed setting.

Sensitive habitats within the ROI have been mapped under the National Wetlands Inventory (NWI) program for the Zanesville West, Ohio, quadrangle (scale of 1:24,000) (Figure 3.4-7). This map was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified in accordance with Classification of Wetlands and Deepwater Habitats of the United States. Within the ROI, 178 wetland areas are classified by the NWI. Of these areas, 159 are 1 acre or less in size, 17 are between 1 and 5 acres, and two are between 5 and 10 acres. In addition, the Ohio Wetlands Inventory (OWI) has mapped the Lockbourne quadrangle (scale of 1:24,000), which includes Rickenbacker ANGB (Figure 3.4-6). OWI is based on analysis of satellite data and is intended solely as an indicator of wetland sites for which field review should be conducted. The satellite data reflect conditions during the specific year and season the data were acquired and therefore all wetlands may not be indicated, such as seasonal wetlands. Statistics generated from the OWI are intended solely as an approximation. A survey for jurisdictional wetlands has not been performed on Rickenbacker ANGB.

#### **3.4.6 Cultural Resources.**

Cultural resources are prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious or any other reason. Cultural resources have been divided for ease of discussion into three main categories: (1) prehistoric resources, (2) historic structures and resources, and (3) traditional resources. These types of resources are defined in Appendix





E, Methods. For the purposes of this analysis, paleontological remains, the fossil evidence of past plant and animal life, have been included within the cultural resources category.

The ROI for the analysis of cultural resources minimally includes all areas within the base boundaries, whether or not certain parcels would be subject to ground disturbance. For this analysis, the ROI is synonymous with the Area of Potential Effect (APE) as defined by regulations implementing the National Historic Preservation Act (NHPA). The potential conveyance of federal property to a private party or non-federal agency constitutes an undertaking, or a project that falls under the requirements of cultural resource legislative mandates, because any historic properties located on that property would cease to be protected by federal law. However, impacts resulting from conveyance could be reduced to a non-adverse level by placing preservation covenants on the lease or disposal document. Reuse activities within designated parcels that may affect historic properties would require the reuser to comply with the requirements contained in the preservation covenants. The ROI also includes those areas designated for potential acquisition that might be affected directly or indirectly under the Proposed Action or its alternatives.

Numerous laws and regulations require federal agencies to consider the effects of a proposed project on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., the State Office of Historic Preservation and the Advisory Council on Historic Preservation). Methods used to achieve compliance with these requirements are presented in Appendix E.

Only those potential historic properties determined to be significant under cultural resource legislation are subject to protection or consideration by a federal agency. The qualities of significance and integrity, in terms of applicability to National Register of Historic Places (NRHP) criteria, are discussed in Appendix E, Methods. Significant cultural resources, either prehistoric or historic in age, are referred to as "historic properties." In compliance with the NHPA, the Air National Guard Bureau has initiated the Section 106 review process with the Ohio State Historic Preservation Officer (SHPO). Record and literature searches were performed at the Ohio Historic Preservation Office, the Ohio Historical Society, the Ohio State University Library in Columbus, and at the base archives at Rickenbacker ANGB by Argonne National Laboratory during a cultural resources survey at the base in May and June 1993 (Anderson and Marquardt, 1993).

**3.4.6.1 Prehistoric Resources.** Human habitation of the eastern woodlands probably began before 11,000 years ago with the PaleoIndian period. This period is characterized by the exploitation of large, now extinct mammals. In Ohio, PaleoIndian sites primarily consist of isolated finds of diagnostic projectile points (Funk, 1978). Evidence of occupation in Franklin County, however, dates from approximately 5,000 to 7,000 years ago. These remains consist of scatters of chipped stone flakes and diagnostic projectile points and other bifaces (Anderson and Marquardt, 1993). These sites belong to the Archaic period, which lasted from 10,000 to 2,500 years ago. People during this period were hunters and gatherers, exploiting river, lake, and forest environments for fish, plant foods, deer, and waterfowl. Cultivation of squash and sunflower began in the latter part of the Archaic, but increased in importance during the following Woodland period, as did the production of pottery (Steponaitis, 1986). Plants such as weedy seeds and corn were also cultivated in garden plots adjacent to

small villages during this period. The southern Ohio area was also the locus of the Adena and the Hopewell burial complexes, which were characterized by the construction of large earthen mounds and the long distance exchange of coastal shells, copper from the Great Lakes area, and blades made from Ohio Valley cherts. Hopewell mound sites are found in many of the floodplains and adjacent terraces of the Scioto River and its tributaries.

During the succeeding Mississippian period from 1000 A.D. to approximately 1700 A.D., the inhabitants relied primarily on agriculture, especially corn, beans, and squash and had a much more elaborate political organization. The diet also was supplemented with resources from hunting and fishing, in particular deer, turkey, waterfowl, and assorted riverine species. Many of these societies lasted until the arrival of the first Europeans and were eventually destroyed by disease, trade, and warfare. Mississippian sites in southern Ohio occasionally contain earthen platform mounds in addition to habitation sites. Like the Woodland mound sites, they tend to be found in the floodplains and terraces of larger rivers and streams (Steponaitis, 1986).

A cultural resources survey of undisturbed portions of the base was conducted in June, 1993 (Anderson and Marquardt, 1993). The survey plan was developed in consultation with the Ohio SHPO and consisted of a walking survey of five parcels totaling approximately 200 acres of undisturbed lands near the boundaries of the base using 15- to 30-foot transect intervals. In addition to surface inspection of the ground and examination of all recent ground disturbance, limited subsurface testing was conducted within parcels at approximately 100- to 150-foot intervals. Five to ten shovel probes were excavated within three of the parcels, while surface inspection alone was conducted at two parcels that either contained evidence of recent disturbance or past evidence of underground pipelines and electrical lines (personal communication, Anderson, 1994; Anderson and Marquardt, 1993). No archaeological materials were recovered during the survey or from the subsurface testing. No other surveys have been conducted within the base and no archaeological sites are known to occur at the base. There are no National Register listed or eligible properties within the base. Two National Register sites are listed within 5 miles of the base; both are mound sites. Other sites, primarily lithic scatters near Big Walnut Creek, are located within 1 mile of the base, but outside of the RPA planning area. One prehistoric lithic scatter has been recorded within the planning area, north of the base. No other areas adjacent to the base have been surveyed.

Because of the disturbance caused by the construction and maintenance of the base and agricultural practices over the last 200 years, it is unlikely that prehistoric archaeological remains are located within the base. The activities both on and off base would have disturbed or destroyed whatever surface evidence of prehistoric culture may have existed in the past. However, it is possible that sites occur in less developed areas south of the base, especially near Little Walnut Creek. The off-base parcels to be acquired by the RPA under the Proposed Action include areas highly sensitive for cultural resources. These include areas adjacent to Little Walnut Creek, where prehistoric middens, camps, and habitation sites are likely to be located. Lithic scatters and other site types have been identified in the areas similar to those included in the parcels to be acquired.

**3.4.6.2 Historic Structures and Resources.** Central Ohio, along with parts of neighboring states, opened to widespread settlement by Euroamericans following tribal surrenders and treaties with Native Americans in the early

1 nineteenth century. As the number of settlers increased, the area surrounding  
2 the base continued to be characterized by small family farms. Industrial growth  
3 nearby left southern Franklin and northern Pickaway counties in a largely rural  
4 condition. The Ohio Canal to the east, the Norfolk and Western Railroad, and  
5 the Chesapeake and Ohio Railroad to the west passed around the areas now  
6 occupied by the base. The only recorded historic resource on the base was the  
7 small Huddle cemetery containing 56 burial plots; it was relocated off the base  
8 when the base was first constructed at the start of the United State's  
9 involvement in World War II.

10 Rickenbacker ANGB was originally named Lockbourne AFB, after the  
11 neighboring town just to the west. Its mission was to serve as the Southeastern  
12 Training Center for glider pilots in the Army Air Corps. The base was built on  
13 land that formerly supported existing farmsteads, although planning maps from  
14 1942 do not show any existing structures (Anderson and Marquart, 1993). The  
15 Huddle cemetery, dating to the late nineteenth century (Anderson and Marquart,  
16 1993), was moved at this time. It was originally located near the north extent of  
17 the base, an area that is now outside the present Rickenbacker ANGB.

18 Following its construction in 1942, the base mission emphasis changed to that of  
19 training instructors for B-17 flight schools throughout the country and training  
20 Women Air Force Service pilots as engineering test pilots. The base was  
21 deactivated in 1949 and given to the Ohio ANG, which operated the base until  
22 1951. In 1951, at the start of the Korean War, the base was reactivated as an  
23 Air Force base under the command of the Strategic Air Command. Upon being  
24 designated a permanent military installation in 1953, the base underwent  
25 remodeling, new construction, land acquisitions, and changes to accommodate  
26 larger aircraft. Land acquisitions over the years (occurring 1942 to 1944; 1951  
27 to 1952; 1955 to 1956; and 1959 to 1960) resulted in a maximum base size of  
28 approximately 4,400 acres.

29 In 1974, the base was realigned and renamed Rickenbacker AFB in honor of  
30 Captain E.V. Rickenbacker. Jurisdiction over the base was moved to the Ohio  
31 ANG in 1980, and in 1984 the RPA purchased a large part of the base, much of  
32 which was subsequently leased to private businesses. The base now consists of  
33 151 buildings and over 280 other facilities on 2,100 acres (Anderson and  
34 Marquart, 1993; USAF, 1992).

35 A 1975 literature review of Franklin County and the EIS for the proposed joint  
36 use of Rickenbacker ANGB (USAF, 1981) found that there were no significant  
37 historical sites on base. This was corroborated by a recent archaeological and  
38 historical survey (Anderson and Marquart, 1993) conducted for the U.S. Air  
39 National Guard Natural Resources Staff in 1993. This survey investigated  
40 records at the Ohio Archaeological Survey, examined buildings from the initial  
41 base construction (1942 to 1943), and conducted an intensive pedestrian  
42 (walking) survey, including a limited shovel test program, of all portions of the  
43 base not obviously disturbed or occupied by construction or facilities. The study  
44 found no evidence of historic archaeological resources and concluded that it was  
45 unlikely that any evidence of historic activity remained within the base  
46 boundaries. Furthermore, any such evidence that might have been present prior  
47 to construction of the base would have been destroyed by construction activity.  
48 Four buildings built in 1942 were inventoried and were found not eligible for the  
49 National Register.

50 There is, however, mention of human bones found during excavation of the  
51 foundation for the control tower (personal communication, Anderson 1994).

Anderson and Marquart (1993) cite "...the story of the apparent discovery of human bones in fill from the excavation of a building foundation in the early 1980s at Rickenbacker ANGB. However, there is no information in the State Archaeological files to corroborate this story." Evidence of the finding of the bones is anecdotal with no real indication that the bones were ever identified as human (personal communication, Anderson 1994).

There are over 300 National Register sites within Franklin and Pickaway Counties and almost 40 in neighboring Fairfield County to the east, all within a 20-mile radius of the base (National Park Service, 1989). However, there are no National Register properties within the boundaries of Rickenbacker ANGB. Of the properties outside the base, 6 National Register properties or Historic Groups lie within 3 miles of the base. In Franklin County, these include the Groveport Log Houses group and Groveport Town Hall Historic Group, both in Groveport (about 2 miles northeast of the northern extent of the runway); the Christian S. Herr House, between Lockbourne (just west of the base) and Obetz to the north; and the Samuel Landes House near Lockbourne. In Pickaway County, National Register properties within three miles include the Perrill-Goodman Farm House in the vicinity of Groveport and the Renick Farm north of South Bloomfield. Another 10 properties lie outside of the RPA planning area, within a 5-mile radius of the base. These sites are primarily homesteads or associated with the development of townsites.

Based on the *U.S. Air Force Real Property Inventory Detail List* (U.S. Air Force, 1992b), 30 structures and facilities on Rickenbacker ANGB remain that are 50 years of age or older. These include eight shop, office, and/or storage buildings; one weighing scale; and three storage sheds. All of these 12 structures were built as temporary structures between 1942 and 1944. Eighteen other facilities older than 50 years (three open storage areas; three lights facilities; three runways; two parking areas; and one each water tank facility, electrical substation, storage area, road, railroad trackage, fire hydrant, and apron) do not possess characteristics that could make them eligible.

Visual examination of four of these buildings indicated that they have fallen into great disrepair and have been modified to varying extents over the intervening years (Anderson and Marquart, 1993; USAF, 1992). These buildings are lacking in integrity as defined in the criteria for National Register eligibility; furthermore, despite their association with the events of World War II and the Korean War, there is no evidence that any of these structures were the site of extraordinary or noteworthy activities associated with the war efforts, or possess associations with scientific and technical developments. Thus, they fail to meet the criteria for significance and may be considered not eligible for the National Register. Eight additional structures have not been evaluated, but they have either been heavily modified or are in very poor condition. These structures are probably not eligible for the National Register. The 18 support facilities are also unlikely to be significant. They are also in poor condition and are not associated with significant structures. Because they lack historic association, they are unlikely to be eligible for the National Register. The Ohio SHPO has not officially concurred with these evaluations at this time.

The area immediately surrounding the base has been used primarily for agriculture for over 200 years. The base itself has been under development and in active use since 1942. The activities both on and off base have disturbed or destroyed most surface evidence of historic culture in the area. It is unlikely that any historic archaeological resources will be encountered during any activities on the base. However, a formal historic and architectural inventory of areas

adjacent to the base has not been conducted. Historic farmsteads could be present in the off-base areas to be developed by RPA.

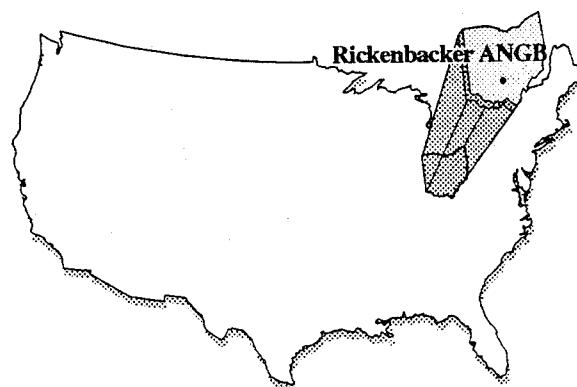
**3.4.6.3 Traditional Resources.** According to the Ohio SHPO, no federally recognized Native American groups live in the State of Ohio (personal communication, Snyder 1994). The area around the base has been used primarily for agriculture for over 200 years, and the base itself has been under development and in active use since 1942. Activities both on and off the base have disturbed or destroyed any evidence of Native American culture that existed in the area. It is unlikely that resources of value to Native Americans exist on the base.

**3.4.6.4 Paleontological Resources.** Four geologic formations are present in Franklin County: (1) the Lower Helderberg Limestone; (2) the Corniferous Limestone; (3) the Huron Shale; and (4) the Waverly Group (Williams, 1974). Although the local limestones and shales are known to contain a wide range of fossil fauna (personal communication, Babcock 1993), only the Corniferous Limestone has the potential to contain a significant number of fossils (Williams, 1974; Anderson and Marquart, 1993). However, the bedrock on base is overlain by 200 feet of glacial soils, such that no bedrock outcrops occur at the base, and therefore bedrock fossils are unlikely to be found.

According to archives at Rickenbacker ANGB, the Geology Library at Ohio State University, and the Division of Geological Survey in the Ohio Department of Natural Resources, no paleontological surveys have been conducted on or near the base, nor are there published reports of paleontological finds in the area (personal communication, Babcock 1993). An unreferenced photograph from the 1880s shows part of a mammoth or mastadon tooth found in the glacial deposits near Rickenbacker ANGB; since the same type of glacial deposits occur at the base, it is possible that some Pleistocene fossils also could occur on base in the glacial soils. However, none are known, and such finds are unlikely to be unique or significant paleontological resources, since the conditions and geology of this area are duplicated throughout most of Ohio (personal communication, Babcock 1993).

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## **CHAPTER 4**

# **ENVIRONMENTAL CONSEQUENCES**



## 4.0 ENVIRONMENTAL CONSEQUENCES

### 4.1 INTRODUCTION

This chapter discusses the potential environmental consequences which would result from the Proposed Action and alternatives. To provide the context in which potential environmental impacts may occur, discussions of potential changes to the local communities, including population, land use, aesthetics, transportation, and community and public utility services are included in this Environmental Impact Statement (EIS). In addition, issues related to current and future management of hazardous materials and wastes are discussed. Impacts to the physical and natural environment are evaluated for soils and geology, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of disposal and reuse activities or as an indirect result caused by changes within the local communities. Possible mitigation measures to minimize or eliminate the adverse environmental impacts are also presented.

Cumulative impacts result from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency... undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 Code of Federal Regulations (CFR) 1508.7 Council on Environmental Quality [CEQ] Regulations Implementing the National Environmental Policy Act [NEPA], 1978). Cumulative impacts are discussed by resource in this chapter.

Means of mitigating adverse environmental impacts that may result from implementation of the Proposed Action or alternatives by property recipients are discussed as required by NEPA. Mitigation measures are suggested for those components likely to experience substantial and adverse changes under any or all of these alternatives. Potential mitigation measures depend upon the particular resource affected. In general, however, mitigation measures are defined in the CEQ regulations as actions that include:

- (a) Avoiding the impact altogether by not taking an action or certain aspect of the action,
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation,
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment,
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and/or
- (e) Compensating for the impact by replacing or providing substitute resources or environments.

A discussion of the effectiveness of mitigation measures is included for those resource areas where it is applicable. Where appropriate, a discussion regarding the probability of success associated with a particular mitigation is included.

Since most potential environmental impacts would result directly from the reuse of Rickenbacker Air National Guard Base (ANGB) by others, the Air Force would not typically be responsible for implementing such mitigations. Full responsibility for these suggested mitigations, therefore, would be borne primarily by future property recipients or local government agencies.

Although reuse development would be decided by recipients and local zoning authorities, probable reuse scenarios were evaluated to analyze the potential environmental impacts.

Alternatives are defined for this analysis on the basis of (1) plans of local communities and interested individuals, (2) general land use planning considerations, and (3) Air Force generated plans to provide a broad range of reuse options. Reuse scenarios considered in this EIS must be sufficiently detailed to permit environmental analysis. Initial concepts and plans are taken as starting points for scenarios to be analyzed. Available information on any reuse alternative is then supplemented with economic, demographic, transportation, and other planning data to provide a reuse scenario for analysis.

## **4.2 LOCAL COMMUNITY.**

This section discusses potential effects on local communities as a result of disposal and reuse of portions of Rickenbacker ANGB.

### **4.2.1 Community Setting**

Socioeconomic effects are addressed only to the extent that they are interrelated with the biophysical environment. A complete assessment of socioeconomic effects is presented in the Socioeconomic Impact Analysis Study (U.S. Air Force 1994) of the reuse of Rickenbacker ANGB.

Employment and population changes generated by the implementation of the Proposed Action and each alternative are discussed in this section. The realignment baseline projects that employment levels of 3,312 full-time and part-time direct military positions and 411 secondary jobs for the year 1994 will remain constant through 2014 for the No-Action Alternative. Population for the Region of Influence (ROI) without reuse related influences (referred to as post-realignment) are 1,044,425 for 1994 and 1,171,593 for 2014. This represents an increase of 27,168, or 12 percent.

This analysis recognizes the potential for community impacts arising from "announcement effects" stemming from information regarding the base's realignment or reuse. Such announcements may impact the affected communities' perceptions and, in turn, could have important local economic effects. An example would be the in-migration of people anticipating employment under one of the reuse options. If it were later announced that the No-Action Alternative was chosen, many of the newcomers would leave the area to seek employment elsewhere. Such an effect could, therefore,

1 result in an initial, temporary increase in population followed by a decline in  
2 population as people leave the area. Changes associated with  
3 announcement effects, while potentially important, are highly unpredictable  
4 and difficult to quantify; therefore, such effects were excluded from the  
5 quantitative analysis in this study, and are not included in the numeric data  
6 presented.

7 In order to provide a basis for comparison of the Proposed Action, reuse  
8 alternatives, and the No-Action Alternative, the influencing factors and  
9 resulting impacts are reported for the property available for disposal. They  
10 do not include employment and population associated with facilities to be  
11 retained by the Air Force, which are not available for reuse. Employment  
12 and population associated with these facilities would remain after  
13 realignment, regardless of the disposition of the base. The following sections  
14 describe employment and population effects of each reuse alternative  
15 relative to these post-realignment conditions.

16 **4.2.1.1. Proposed Action.** It is estimated that the redevelopment activities  
17 under the Proposed Action would increase employment levels in the ROI by  
18 approximately 8,934 jobs (4,044 direct and 4,890 secondary), or 1.0 percent,  
19 over post-realignment conditions in 2014. By 2005, the employment  
20 opportunities created by the Proposed Action would more than compensate  
21 for the direct and secondary jobs in the ROI associated with Rickenbacker  
22 ANGB and lost by 1994. Total ROI employment would reach 803,013 by  
23 2014 under the Proposed Action. Figure 4.2-1 shows the effects of the  
24 Proposed Action and alternatives on employment in the ROI.

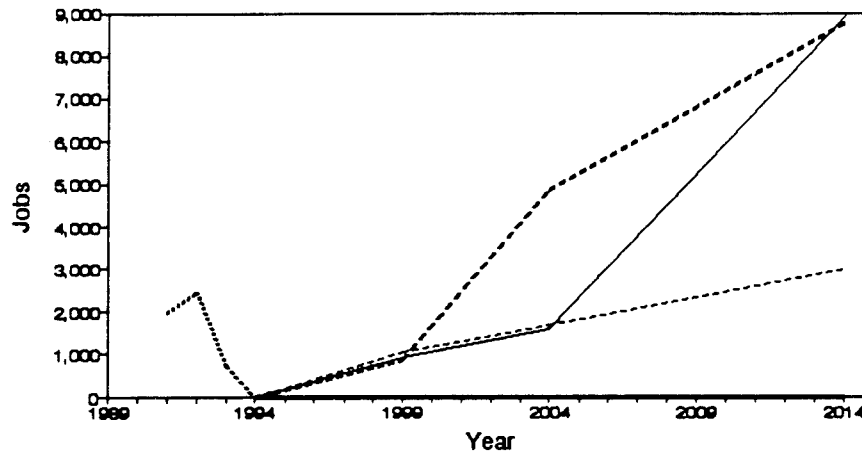
25 The population in the two-county ROI would increase by approximately 477,  
26 or 0.04 percent, over post-realignment conditions in 2014. By 2014, 230 of  
27 the in-migrating persons are expected to reside within Columbus, while 15  
28 and 9 persons are expected to reside in Reynoldsburg and Groveport,  
29 respectively. Figure 4.2-2 shows the effects of the Proposed Action on the  
30 population in the ROI.

31 Total ROI population is expected to reach 1,225,667 by 2014 under the  
32 Proposed Action. The Proposed Action would generate positive economic  
33 benefits by increasing employment and earnings in the region.

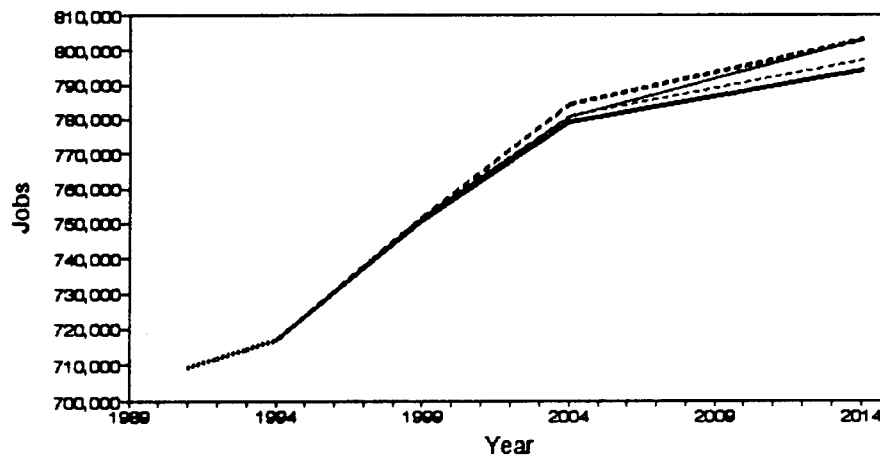
34 **4.2.1.2. Aviation with Industrial Park Alternative.** This alternative would  
35 increase ROI employment by approximately 8,771 jobs (3,964 direct and  
36 4,807 secondary), or one percent, over post-realignment conditions in 2014  
37 (see Figure 4.2-1). By 2004, the employment opportunities created by the  
38 Aviation with Industrial Park Alternative would more than compensate for the  
39 direct and secondary jobs in the ROI which would be lost due to the  
40 realignment of Rickenbacker ANGB in 1994. The jobs created by this  
41 alternative are expected to generate an in-migrant population to the ROI of  
42 471 persons by 2014. Total ROI employment under this alternative would  
43 reach 802,850 by 2014, and the total ROI population in 2014 would be  
44 1,225,661. This alternative would induce positive economic benefits by  
45 generating employment and earnings in the region.

Alternative	1994(a)	1999	2004	2014
Proposed Action	1,148	910	1,559	8,934
Aviation with Industrial Park	1,148	846	4,865	8,771
Aviation with Mixed Use	1,148	1,027	1,669	2,984
No Action	1,148	0	0	0

Reuse-Related  
Employment  
Effects (b)



Reuse-Related  
Employment  
Effects  
(b)



Total  
Employment  
Including  
Reuse Effects

#### EXPLANATION

- ..... Preclosure
- Proposed Action
- Aviation with Industrial Park Alternative
- Aviation with Mixed Use Alternative
- No-Action Alternative

- (a) The 1994 values represent full-time, site-related employment under closure conditions.
- (b) Employment effects include both direct and secondary employment and represent the net change in employment above the No-Action alternative.

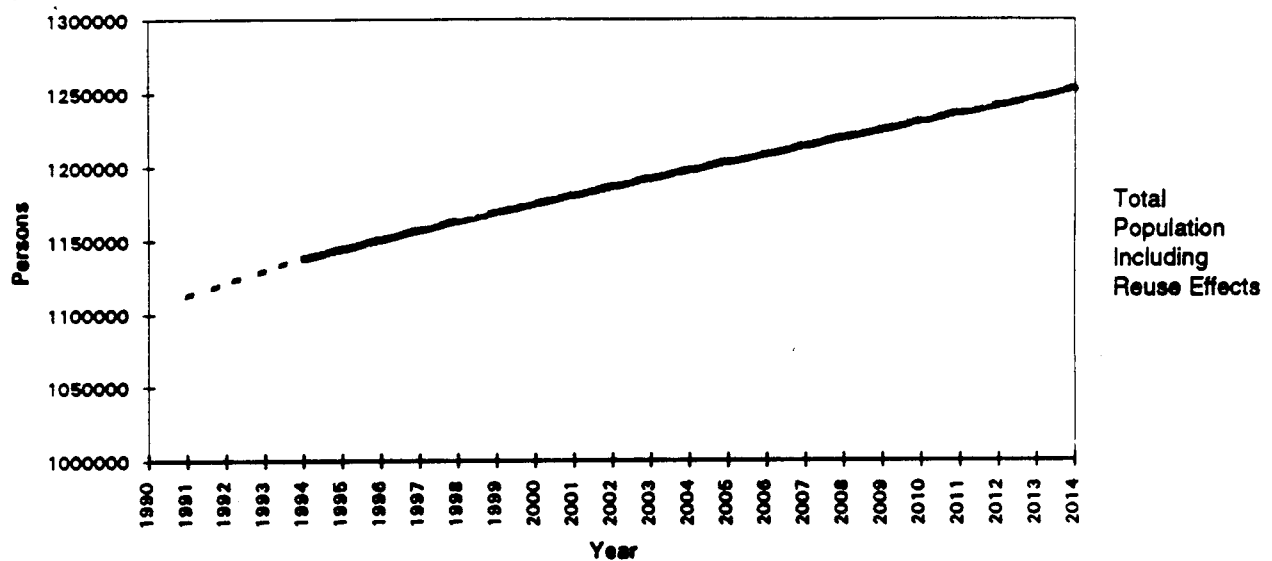
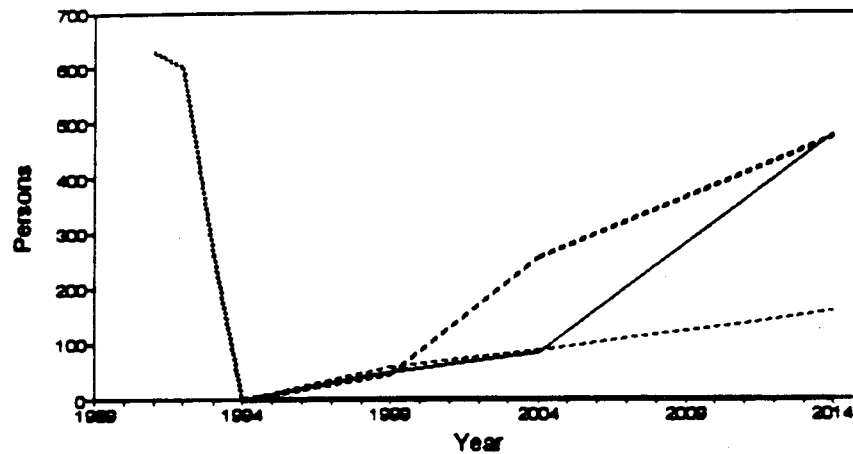
Source: US Air Force, 1994.

#### Reuse-Related Employment Effects

Figure 4.2-1

Alternative	1994(a)	1999	2004	2014
Proposed Action	1,148	910	1,559	8,934
Aviation with Industrial Park	1,148	846	4,865	8,771
Aviation with Mixed Use	1,148	1,027	1,669	2,984
No Action	1,148	0	0	0

Reuse-Related  
Population  
Effects (b)



#### EXPLANATION

- ..... Preclosure
- Proposed Action
- ..... Aviation with Industrial Park Alternative
- ..... Aviation with Mixed Use Alternative
- No-Action Alternative

(a) 1994 represents closure conditions

(b) Migratory-related population effects are the persons that would move into the ROI solely as a result of reuse.

Source: U.S. Air Force, 1994

#### Reuse-Related Population Effects

Figure 4.2-2

1 **4.2.1.3. Aviation with Mixed Use Alternative.** This alternative would  
2 increase ROI employment by approximately 2,984 jobs (1,259 direct and  
3 1,725 secondary), or 0.3 percent, over post-realignment conditions in 2014.  
4 By 2014, the employment opportunities created by the Aviation with Mixed  
5 Use Alternative would more than compensate for the direct and secondary  
6 jobs in the ROI which would be lost due to the realignment of Rickenbacker  
7 ANGB in 1994. Under this alternative, the population in the ROI would  
8 increase by approximately 158 persons over post-realignment conditions in  
9 2014. Total ROI employment and population in 2014 would be 797,063 and  
10 1,225,348, respectively. This alternative would also induce positive  
11 economic benefits by generating employment and earnings in the region;  
12 however, these benefits would not be as great as those generated under the  
13 Proposed Action or the Aviation with Industrial Park Alternative.

14 **4.2.1.4. No-Action Alternative.** Under this alternative, base-related  
15 employment would be similar to realignment baseline conditions, throughout  
16 the 20-year analysis period. Approximately 3,723 full-time and part-time  
17 direct and 411 secondary jobs would continue to be associated with the  
18 military cantonment, enclave, and caretaker activities. Total ROI  
19 employment would be estimated to increase from 717,009 at realignment to  
20 794,079 in 2014, at an average rate of 0.5 percent per year.

21 **4.2.1.5. Other Land Use Concepts.** In response to solicitation from the  
22 DOD, in accordance with the Federal Property and Administrative Services  
23 Act of 1949, requests were received from some state and federal agencies  
24 for acquisition of certain land or facilities that may become available after  
25 realignment. In addition, requests from independent organizations and  
26 individuals have been received. These proposals and requests, which are  
27 not part of any integrated reuse plan, could be initiated on an individual  
28 basis or in combination with anyone of the reuse alternatives, including the  
29 Proposed Action.

30 Nearly all requests are for one or more facilities north of Second Street and  
31 west of Club Road. This area includes the dormitories, clinic, dining hall,  
32 Officers Club, gymnasium, BX, and outdoor track.

33 **U.S. Army Reserve.** The 83rd U.S. Army Reserve Command requests  
34 transfer of Buildings 851, 852, 856, 859, and 870, including parking lot areas  
35 between the buildings, vacant land between Buildings 856 and 863, and two  
36 acres of vacant land between Buildings 810 and 801 on the north side of  
37 Tank Truck Road. The facilities would be used as a training facility with  
38 offices and classrooms to support the 914th Combat Support Hospital.  
39 There would be about 14 full-time employees during the week, and up to 606  
40 reservists on site for one weekend each month.

41 **Housing for the Homeless.** As part of the McKinney Act of 1987 and the  
42 Pryor Amendment of 1993, HUD, in conjunction with the HHS and GSA,  
43 identifies surplus government buildings and properties for suitability as  
44 housing for the homeless. HUD evaluated the existing dormitories and did  
45 not find them suitable for housing due to the proximity of the fuel storage  
46 facility.

47 Homeless Assistance providers have shown interest in using all the  
48 dormitories, Officers Club, gymnasium, BX, the track, the swimming pool,

1 and two ball fields for homeless housing. The proponent will appeal HUD's  
2 evaluation on the basis that this has been suitable housing for the military  
3 and that off-base housing development is also located in proximity to the  
4 fuel storage facility. A formal proposal has not been received by the Air  
5 Force, but the proponent indicated that about 500 people would be housed  
6 at Rickenbacker with support staff and transportation to Columbus provided.

7 **Ohio Department of Rehabilitation and Corrections.** The Ohio  
8 Department of Rehabilitation and Corrections has expressed an interest in  
9 using all 16 dormitory facilities and associated heat plant (Building 871), and  
10 Buildings 800, 810, 855, 856, 863, 864, and 874 for use as a Correctional  
11 Administrative Complex. The complex would include a Corrections Officer  
12 Training Academy, Employment Assessment Center, the Department of  
13 Rehabilitation Central Office, and the Ohio Penal Industries Headquarters  
14 and warehouse, with classrooms and housing for trainee corrections officers,  
15 administrative offices, and warehousing space. The complex should have  
16 about 390 full-time employees. A proposal to house as many as 200  
17 inmates was recently withdrawn.

18 **Relocation of Naval Reserve Center.** The RPA requests that the U.S.  
19 Navy relocate the Naval Reserve Center, currently situated on about 25  
20 acres owned by the U.S. Navy at the north end of the airfield, into Building  
21 874 within the current base boundary. The Naval Reserve Center would  
22 occupy about 100,000 square feet of this large warehouse/office facility, and  
23 would be adjacent to the Ohio Air National Guard cantonment area. This  
24 relocation would make available 25 acres of land that could be used for  
25 aviation support.

26 **Other Requests/Proposals.** A number of other agencies and independent  
27 parties have made requests or proposals for some or all of the community  
28 facilities and dormitories in the northwest portion of the base. Reuses would  
29 essentially be similar to present and past activities in these facilities.

30 Several groups have requested the use of the Officers Club with pool and  
31 surrounding grounds (Buildings 800, 801, 802, 803). Building 810 and its  
32 equipment are requested for reuse as a gymnasium. Building 812 has  
33 several proposed reuses including a day care and senior citizens' center.  
34 Building 869 is requested for use as an educational facility for local college  
35 and office space. Buildings 860, 861, 862, and 871 (the associated  
36 heating/cooling building) are requested for reuse as billeting to support  
37 military needs and as a hotel. The equipment and surrounding grounds from  
38 these buildings are also requested. This request would generate about nine  
39 full-time and 35 part-time jobs and between 280 and 330 daily customers,  
40 including 80 overnight residents and an undetermined number of students.

41 An independent proposal requests the use of Building 538 as a Flight  
42 Training School, and one hangar (Building 594, 595, or 596) as an aircraft  
43 maintenance area for the flight school. The flight school would generate  
44 about 5,000 air operations annually, including pattern work at the airfield.  
45 As part of the renovation of Building 538, a 75-person coffee shop, a 75-  
46 person lounge, a plane and pilot store, pilot lounge, and large multi-purpose  
47 meeting room would be included. About 15 full-time jobs would be  
48 associated with Building 538. Currently 35 student are enrolled with a  
49 proposed increase to 85 students.

#### 4.2.2 Land Use and Aesthetics

This section discusses the Proposed Action and alternatives relative to land use and zoning to determine potential impacts in terms of general plans, zoning, land use, and aesthetics. Land use compatibility with aircraft noise is discussed in Section 4.4.4, Noise; however, this section identifies noise related zoning issues.

##### 4.2.2.1 Proposed Action.

**General Plans.** The Proposed Action would be compatible with the City of Columbus Comprehensive Plan (City of Columbus, 1992), the Comprehensive Plan for Groveport, Ohio (Update) (Village of Groveport, 1989), and Canal Winchester Community Plan (Village of Canal Winchester, 1991). Franklin and Pickaway Counties do not have formal plans. On a regional level, the City of Columbus has the largest influence over growth and development. Development depends on adequate infrastructure and services. The City has extended water services down to the Rickenbacker ANGB and the airport, and is poised to annex this area in the future. The City's Comprehensive Plan designates an area between the Fairfield/Franklin County border and U.S. Highway 23, which includes the RPA planning area, as an expansion development area. These areas are favored by the City for expansion, development, and annexation. Specifically, a "fringe village" is indicated in the vicinity of the base. The fringe village concept incorporates planned community development with a mix of industrial, commercial, residential and community uses. Existing off-base housing and community infrastructure on the base suggest the potential for community scale development in the study area. The proposed land uses in the study area would be typical of an expansion development area, but would not include a mix of land uses typical of fringe village development. Temporary interim use of portions of the industrial areas on the northwest side of the base for housing for the homeless, community service and recreation uses, would be consistent with fringe village concept.

The RPA planning area lies within the eastern extension of the southern wellfield protection area. The City of Columbus Comprehensive plan favors annexation of wellfield protection areas to implement zoning that will limit land uses with high potential for polluting recharge areas in the future. However, a study by the City of Columbus (1990, 1991), *Water Beyond 2000*, does not consider expansion of this area for additional water recharge because of existing industrial development and potential contamination from past activities at Rickenbacker ANGB.

The Village of Groveport plans to develop industrial areas to the west and south. Recently, Groveport extended its jurisdiction to the boundary of Rickenbacker ANGB in order to incorporate the area newly developed by Spiegel/Eddie Bauer. This community and its plan support industrial and airfield development at Rickenbacker airport. The plan recommends that areas with potential for noise impacts from the airfield should only be developed where noise levels are under 60 dB. As shown in Section 4.4.4, noise levels resulting from the Proposed Action would not significantly alter the extent of the land affected by airport activity on the south side of the village relative to baseline conditions. Much of the affected area is in the



1 Little Walnut Creek floodplain and therefore not developable. The Proposed  
2 Action is compatible with the Groveport Comprehensive Plan.

3 The Village of Canal Winchester to the northeast of the airfield has not been  
4 affected directly by activity on the base in the past. No portion of this  
5 municipality is adjacent to the airfield. An area in the vicinity of U.S.  
6 Highway 33 and Gender Road is proposed for a new Regional Commerce  
7 District. This use would be compatible with airport activities under the  
8 Proposed Action.

9 **Zoning.** After realignment, the base property would be within the  
10 jurisdiction of Franklin County. Franklin County has zoned portions of the  
11 base excessed to the RPA in the past for General Industrial use. It is  
12 anticipated that this designation would apply to land within the study area  
13 under Proposed Action conditions. The land uses proposed for the study  
14 area would be compatible with this designation. Industrial zoning can be  
15 compatible with surrounding residential uses if development integrates  
16 buffering elements (such as landscaped areas and grade changes) to  
17 provide separation of the land use functions.

18 Most areas surrounding the base are zoned for "rural residential" or "farm  
19 residential" development, permitting about one dwelling unit per acre.  
20 Residential zoning is compatible with noise levels below 65 dB, and with  
21 restrictions, with noise levels between 65 and 75 dB. Under the Proposed  
22 Action some areas underlying the flight tracks to the northeast of the airfield  
23 that are zoned rural residential will continue to be exposed to noise levels  
24 above 75 dB and be incompatibly zoned with adjacent airfield activity.  
25 Operations on the new runway would expand the areas in Franklin and  
26 Pickaway counties affected by noise levels above 75 dB. Rural residential  
27 zones would be incompatible with future airfield expansion in these areas.  
28 However, agricultural use (excluding livestock breeding) in rural residential  
29 zones would be compatible with projected noise levels.

30 Currently, there is no airport overlay district providing for restrictive  
31 development conditions in areas affected by noise. However, the City of  
32 Columbus Comprehensive Plan recommends that an airport district be  
33 developed for areas affected by aircraft operations at Rickenbacker airport.  
34 Areas surrounding the base both in Franklin and Pickaway counties are  
35 zoned for rural residential development.

36 Zoning changes and variances are handled on a case-by-case basis and  
37 have resulted in small areas zoned for commercial, industrial, and special  
38 uses. "Spot" zoning changes in the area have been made for more intensive  
39 uses (such as commercial, industrial or manufacturing) and are compatible  
40 with the Proposed Action. Franklin County Commissioners promote the  
41 planning objectives of the Lockbourne Air Force Base protection plan of  
42 1958 when considering applications for zoning changes in unincorporated  
43 areas underlying airfield approach zones.

44 Zoning in Pickaway County is determined by each township. The portions of  
45 the base and RPA property within Pickaway County are designated as  
46 separate airport property. Otherwise, all areas are zoned for rural residential  
47 use, and variances must be approved. In the past, township zoning review  
48 boards have not favored more intensive uses. Future development in

off-base areas of Pickaway County resulting from airfield development would have to be approved by township zoning boards.

**Land Use.** In general, the Proposed Action would continue the urban expansion currently underway on RPA land into agricultural and low density residential areas on the south edge of the Columbus metropolitan area. This would affect rural residential land use, particularly in portions of Pickaway County. However, from a regional perspective, the lack of development around Rickenbacker airfield presents expansion opportunities that do not exist for other airports in the Columbus area.

Within the study area, the Proposed Action would result in more intensive industrial and airfield use. Proposed industrial development adjacent to existing housing to the north could be incompatible. Increased truck traffic traveling Shook Road from the study area in SR 317 could be incompatible with the elementary school, as could the widening of SR 317 along its current alignment. Most of the study area to the south and east is adjacent to either RPA property which is currently undeveloped, or agricultural areas associated with family homesteads. Increased airfield activity would not be incompatible with agricultural use, but could adversely affect rural residential uses.

The RPA has been acquiring land, mostly in Franklin County, at the northeast end of the existing airfield to prevent encroachment and to gain positive control over areas that could be impacted by airfield operations and runway protection zones. Under the Proposed Action, land acquisition would continue on the south side of the airfield for expansion in the third phase of the planning period, including portions in Pickaway County. Land acquisition of areas with existing homes and two mobile home parks, and construction activity, would have an adverse impact on existing residential land uses. Runway protection zones (RPZs) for the new runway would include floodplain areas of Little Walnut Creek. Future development of waterways for recreation and preservation corridors would be compatible with this use. The southwest RPZ would include two existing mobile home parks. Continued use of these areas for residential use would be incompatible with airfield development. Areas in southern Groveport and some unincorporated areas would be less suitable for residential development in the future.

Under the Proposed Action, runway protection zones defined by the FAA would be contained within the airport boundaries for the existing and expanded airfield.

The Federal Farmland Protection Policy Act (FFPPA), 7 U.S.C. § 4201 et seq., directs federal agencies to take into account the adverse effects of federal programs on the preservation of farmland; considers alternative actions, as appropriate, that could lessen such adverse effects; and assures that such federal programs, to the extent practicable, are compatible with state, unit of local government, and private programs and policies to protect farmland. In developing the guidelines to be used in this process, the implementing regulations (7 CFR Part 658) provide that where the state in which the project will occur has developed an approved Land Evaluation and Site Assessment (LESA) system, the federal agencies use that system to make their evaluation.

1 The agricultural lands impacted by this proposal are outside the boundaries  
2 of Rickenbacker ANGB and would be acquired to support development for  
3 aviation activities. About 1,700 acres of land designated as prime farmland  
4 in portions of Franklin and Pickaway counties would be acquired and  
5 converted for proposed airfield expansion. In addition, some prime farmland  
6 in Franklin County at the northeast end of the airfield will continue to be  
7 acquired by the RPA as part of the noise control program developed in the  
8 Part 150 study for the airport, and includes land within existing RPZs  
9 prescribed by the FAA for safe airfield operations.

10 **Aesthetics.** The most sensitive visual receptor in the area is the existing  
11 housing on the north edge of the base. Industrial development under the  
12 Proposed Action would result in visual conditions that are not generally  
13 compatible with adjacent residential uses. Development standards could be  
14 used to provide visual screening such as berms and landscaping, between  
15 affected housing areas and industrial facilities, to block line-of-sight to  
16 incompatible visual elements. Other residential pockets in the surrounding  
17 area, such as the Village of Lockbourne and homes south of the airfield,  
18 have less visual connection to the planning area, due to intervening grade  
19 changes, vegetation, or distance, and would be less affected by large-scale  
20 development in the planning area.

21 **Cumulative Impacts.** High levels of industrial development and airfield  
22 activity would limit the suitability of some areas in the vicinity of the airport  
23 for residential development. Specifically, existing residential areas in  
24 former base housing areas would be affected by extensive industrial  
25 development and increased traffic if Shook Road and SR 317 were widened  
26 to meet vehicular demands. Upgrading SR 317 could result in additional  
27 property condemnation in the area, attract additional industrial and other  
28 development, and increase truck traffic in the vicinity of the elementary  
29 school.

30 If a new intermodal facility is constructed on the west side of the airport, low  
31 density residential areas between Canal Road and airport property would  
32 become industrial land. This would be compatible with development in the  
33 study area, but would lessen the suitability of the area for existing and future  
34 residential use in the vicinity of the airport. This development would require  
35 extensive land and could affect the residential quality of the Village of  
36 Lockbourne, although an intermodal facility in this location would be  
37 separated from the Village of Lockbourne by existing elevated railroad  
38 grades.

39 **Mitigation Measures.** Zoning changes would be required for portions of  
40 Franklin and Pickaway Counties that would be developed for future industrial  
41 use. Areas acquired by the RPA would become part of the airport, and the  
42 zoning would change by default. Recommendations in the City of Columbus  
43 Comprehensive Plan to establish an airport zoning district would provide  
44 for compatible zoning and construction standards in areas around the  
45 current and proposed airfields. Local development standards could require  
46 site design elements that would buffer areas with incompatible uses.  
47 Communities without General Plans that wish to preserve certain land uses  
48 may need to rezone areas to provide adequate buffer zones against airport  
49 expansion areas where possible.

Architectural design standards and landscaping requirements can be implemented through the governing jurisdiction after disposal to minimize visual and acoustical impacts from new industrial development at the airport on existing housing areas north of the base.

The RPA could develop a land acquisition plan to obtain funding and acquire currently undeveloped areas within proposed expansion areas as early in the planning period as possible. This strategy would lessen the potential for displacing development that may occur in undeveloped areas in the interim.

Development of prime farmland areas that are acquired for airfield expansion may occur at some time beyond acquisition. Provision for interim use of these areas for continued agricultural production until development occurs would delay the impacts of the eventual loss of farmland and extend the productivity period. Areas being acquired to provide positive land use control and buffers from encroachment could continue to be used for agriculture indefinitely when such use does not conflict with safety of airfield operations.

#### **4.2.2.2 Aviation with Industrial Park Alternative.**

**General Plans.** This alternative would have similar effects on General Plans as the Proposed Action (see Section 4.2.2.1). In this alternative, a new runway would not be constructed, and airfield operations would not affect new areas to the southeast.

**Zoning.** The land uses proposed for this alternative within the study area and total RPA planning area would have the same effects on zoning of surrounding areas as the Proposed Action (see Section 4.2.2.1)

**Land Use.** This alternative would result in similar effects on land use within the study area and surrounding areas as described for the Proposed Action. However, since a new runway would not be constructed, land acquisition would be less extensive. Some additional land may be acquired as buffer areas for existing airfield protection, but acquisition of properties for new construction would not occur. Therefore, this alternative would result in fewer impacts on land uses in the area. New aviation support and industrial development would occur on the south side of the existing airfield beginning late in the third planning phase to support the anticipated growth in aviation activity. This would result in new industrial-type development in unincorporated rural areas.

Prime farmland at the northeast end of the existing airfield within Franklin County will continue to be acquired by the RPA as part of the Noise Control Program developed in the Part 150 Study for the airport. This acquisition area includes land within existing RPZs. Acquisition of additional prime farmland would not be required for airfield expansion.

**Aesthetics.** The most sensitive visual receptor in the area is the existing housing on the north edge of the base. Industrial development under the Aviation with Industrial Park Alternative would result in visual conditions that are not generally compatible with adjacent residential uses. Development standards could be used to provide visual screening, such as berms and landscaping, between affected housing areas and industrial facilities, to

1 block line-of-sight to incompatible visual elements. Other residential  
2 pockets in the surrounding area, such as the village of Lockbourne and  
3 homes south of the airfield, have less visual connection to the planning  
4 area, due to intervening grade changes, vegetation, or distance, and would  
5 be less affected by large-scale development in the planning area.

6 **Cumulative Impacts.** Cumulative impacts of this alternative with other  
7 foreseeable actions in the area would be similar to those discussed for the  
8 Proposed Action.

9 **Mitigation Measures.** Mitigation measures for this alternative would be  
10 similar to those described for the Proposed Action. However, there would be  
11 no need to acquire undeveloped parcels south of the airport to  
12 accommodate future airfield expansion.

#### 13 4.2.2.3 Aviation with Mixed Use Alternative.

14 **General Plans.** A mixture of land uses within the study area would be  
15 similar to existing uses on the base, and would be compatible with the  
16 "fringe village" concept in the City of Columbus Comprehensive Plan.  
17 Reuse of existing recreational facilities and development of affordable  
18 housing with mixed-generational amenities would be compatible with the  
19 goals of the Comprehensive Plan. Mixed uses with open space areas would  
20 also favor wellfield protection objectives by limiting industrial development.

21 To the extent that the Groveport Comprehensive Plan anticipates and  
22 supports development of the airport, proposed office park development  
23 within the study area, primarily in the third phase, would be compatible.

24 **Zoning.** This alternative would be compatible with zoning in surrounding  
25 areas of Franklin County. Most surrounding areas are zoned for rural  
26 residential. Pockets of land zoned for commercial, residential and industrial  
27 use would be similar to mixed uses within the study area. RPA property is  
28 currently zoned for industrial use by Franklin County. Under this alternative,  
29 absorption of industrial areas would occur more slowly than under the  
30 Proposed Action, but development of RPA property for industrial use could  
31 be incompatible with adjacent community and residential zoning.

32 **Land Use.** This alternative incorporates a variety of land uses. It assumes  
33 that aircraft operations would increase at a slower rate than under the  
34 Proposed Action and Aviation with Industrial Use Alternative, and less  
35 aviation support development would be required. The study area would  
36 incorporate community and residential uses similar to existing and previous  
37 uses on the base. Development of recreation areas and landscaped  
38 park-like areas would be beneficial to existing off-base housing. Under this  
39 alternative, surrounding land uses would experience few changes relative to  
40 realignment conditions. New medium density housing and  
41 apartment/retirement populations within the study area would be similar to  
42 previous residential levels at Rickenbacker ANGB. Projected aviation and  
43 industrial development within the total RPA planning area would be low  
44 throughout the planning period, so impacts to surrounding land uses would  
45 be minimal.

The study area is very open, and industrial areas on the south side of Second Street could be noticeable in adjacent residential areas. Visual and noise impacts from industrial areas would be incompatible with planned community and residential development.

Under this alternative, Shook Road would not be widened to accommodate truck traffic. Therefore, fewer impacts to existing residential areas and the elementary school would result than under the Proposed Action and Aviation with Industrial Park Alternative.

Effects on prime farmlands would be the same as for the Aviation with Industrial Park Alternative.

**Aesthetics.** This alternative would provide relatively no change in existing visual conditions, and no impacts would be anticipated on surrounding land uses.

**Cumulative Impacts.** Under this alternative, it is unlikely that SR 317 would be widened. However, if it were, using the existing alignment would have the least impact on planned uses in the study area. Alignments through the study area would be incompatible with existing and planned residential and community development.

A new intermodal facility in the vicinity of the planning area would not be beneficial for fringe village-type development, due to noise from rail operations and increased truck traffic in the area.

**Mitigation Measures.** To reduce the potential for visual and noise impacts from industrial and office park areas on residential and community areas, both within the RPA planning area and in surrounding areas, development standards could be incorporated in local plans to provide adequate landscaping and buffers separating incompatible land use areas (e.g., adjacent industrial and residential zones). For example, Second Street could be developed as a landscaped corridor within the study area with berms or tree plantings to provide separation between industrial and residential/community land use areas.

Areas with high vehicular traffic would need to provide screening, particularly along roadways and in parking areas adjacent to outdoor recreation and residential areas. Zoning could provide for planned development districts, allowing for integrated design of streets and infrastructure for multiple land uses.

#### 4.2.2.4 No-Action Alternative.

**General Plans.** Under the No-Action Alternative, land use in the area generally would be similar to existing conditions. Community-based mixed use development could still occur in surrounding areas. Therefore, the No-Action Alternative would have minimal effects on the City of Columbus Comprehensive Plan. General Plans for Groveport and Canal Winchester would experience few effects if portions of the base remained unused in the future.

1           **Zoning.** Under the No-Action Alternative, much of the base would be  
2 maintained in caretaker status, and zoning designations in the planning area  
3 would be unchanged. There would be no impact on zoning in surrounding  
4 areas.

5           **Land Use.** Development on RPA land would continue to support low level  
6 growth at the airfield. Since this development could not occur within the  
7 study area, new construction would have to occur on existing RPA property.  
8 This would have less impact on projected land use in the planning area than  
9 the other reuse alternatives. Lack of activity and empty facilities in the  
10 study area could be detrimental for promoting growth and development in  
11 surrounding areas. However, only 400 acres, less than 10 percent of the  
12 total RPA planning area, would be unusable. It would be possible for  
13 development to occur around caretaker areas. Effects on prime farmlands  
14 would be the same as for the Aviation with Industrial Park Alternative.

15           **Aesthetics.** Visual conditions in the area would not change significantly  
16 under this alternative. Under caretaker status, empty facilities would be  
17 maintained to prevent deterioration. RPA development areas adjacent to  
18 the study area, may be enhanced by landscaping that limits line-of-sight to  
19 empty facilities.

20           **Cumulative Impacts.** Under the No-Action Alternative, SR 317 could not be  
21 aligned through the study area; therefore, potential impacts from alternative  
22 highway alignments on existing residential areas on the northwest side of the  
23 planning area would be reduced. These areas could still be affected if the  
24 existing highway alignment is widened, however.

25           An intermodal facility could be developed to the west of the airport in the  
26 future. This would be compatible with land use within the RPA planning  
27 area.

28           **Mitigation Measures.** Landscaping and buffering elements could be  
29 installed between areas of growth on RPA property and adjacent unused  
30 portions of the study area. This would enhance and contain the  
31 development areas and allow an image conducive to growth to persist.

32           **4.2.2.5 Other Land Use Concepts.** Several federal and other government  
33 agencies have proposed land uses or made requests for specific facilities on  
34 the base, which could be initiated individually or in combination with any of  
35 the comprehensive alternatives. The potential effects of each of these  
36 concepts on surrounding land use and on land uses of the Proposed Action,  
37 Aviation with Industrial Park, and Aviation with Mixed Use Alternative are  
38 described below. No other land use concepts would occur under the  
39 No-Action Alternative. Most of the proposed federal and independent land  
40 uses would be inconsistent with industrial zoning of base property, but, in the  
41 case of federal facilities (such as housing for the homeless under the  
42 auspices of the Department of Housing and Urban Development), they would  
43 not be bound by local land use regulations. Some independent land uses  
44 could be accommodated as temporary uses under the Proposed Action.

45           **U.S. Army Reserve.** The 83rd U.S. Army Reserve Command requests  
46 transfer of Buildings 851, 852, 856, 859, and 870, including parking lot areas  
47 between the buildings, vacant land between Buildings 856 and 863, and two

acres of vacant land between Buildings 810 and 801 on the north side of Tank Truck Road. The facilities would be used as a training facility with offices and classrooms to support the 914th Combat Support Hospital. There would be about 14 full-time employees during the week, and up to 606 reservists on site for one weekend each month.

This proposal would not be compatible with the proposed industrial development for this area under either the Proposed Action or Aviation with Industrial Park Alternative. Interim use of these facilities would however, be compatible with the Proposed Action through the first and second phase, although the cost-effectiveness of building improvement for short-term use is questionable. Use of these facilities would exclude some development of apartments and retirement facilities under the Aviation with Mixed Use Alternative, although it would be compatible with surrounding off-base land uses and the existing industrial, aviation and military land uses within the total RPA planning area.

**Aesthetics.** This proposal would not result in changes to existing visual conditions and would have little potential to impact adjacent areas. This use would not be sensitive to proposed uses and developments in adjacent areas.

#### **Housing for the Homeless**

**Land Use.** This proposal is similar in scope to the Ohio Department of Rehabilitation and Corrections discussed below, and would have similar impacts on the comprehensive reuse alternatives. Homeless housing is a possible interim use under the Proposed Action, but would not be compatible with ultimate industrial uses for the requested area. This reuse would be compatible with the Aviation with Mixed Use Alternative and consistent with a plan for affordable apartment and retirement dwellings. About 12 acres would still be available for office park development, providing job opportunities for residents in the area.

**Aesthetics.** Visual impacts would be similar to the Ohio Department of Rehabilitation and Corrections proposal, discussed below.

#### **Ohio Department of Rehabilitation and Corrections**

**Land Use.** This proposal would use all of the dormitories and the associated heating facility in combination with 7 other facilities for a Correctional Administration Complex. Uses would include a range of classroom, dormitory, dining and recreational facilities, similar to pre-realignment uses. This proposal would not be compatible with proposed industrial development for this area under the Proposed Action and Aviation with Industrial Park Alternative. Interim use of this area would be compatible with the Proposed Action through the first and second phase, but it may not be cost-effective to make improvements for short-term use of these facilities. Use of the requested area as a training center would exclude development of apartments and retirement facilities and much of the office park development under the Aviation with Mixed Use Alternative, but it would be compatible with surrounding off-base land uses and limited industrial, aviation, and military activities within the total RPA planning area.



1       **Aesthetics.** This proposal would not result in changes to existing visual  
2 conditions and would have little potential to impact adjacent areas. This use  
3 would not be sensitive to proposed uses and developments in adjacent  
4 areas.

5       **Relocation of Naval Reserve Center.** The RPA requests that the U.S.  
6 Navy relocate the Naval Reserve Center, currently situated on about 25  
7 acres owned by the U.S. Navy at the north end of the airfield, into Building  
8 874 within the current base boundary. The Naval Reserve Center would  
9 occupy about 100,000 square feet of this large warehouse/office facility, and  
10 would be adjacent to the Ohio Air National Guard cantonment area. This  
11 relocation would make available 25 acres of land that could be used for  
12 aviation support.

13       Reuse of this facility as a Naval Reserve Center would be incompatible with  
14 the proposed industrial uses of the facility under the Proposed Action and  
15 Aviation with Industrial park and Aviation with Mixed-Use Alternatives  
16 although interim use is possible during the early phases as described for the  
17 U.S. Army Reserve above.

18       **Aesthetics.** This proposal would have minimal impacts on existing visual  
19 conditions and would not affect or be affected by adjacent aviation activities.

#### 20       **Other Requests/Proposals**

21       **Land Use.** Several other state and independent agents have indicated  
22 interest in some or all of the community and residential facilities included in  
23 the independent proposals described above. Isolated reuse of a few  
24 facilities for recreation or billeting/hotel accommodation could be compatible  
25 with all of the comprehensive alternatives, but would be incompatible with  
26 the single ownership concept of the Proposed Action. Independent reuses  
27 would reduce available industrial land under the Proposed Action and  
28 Aviation with Industrial Park Alternative, but would generally be compatible  
29 with uses under the Aviation with Mixed Use Alternative.

30       **Aesthetics.** Reuse of facilities in the northwest part of the study area would  
31 have no impact on visual resources. These reuses would tend to be more  
32 compatible with adjacent residential areas than large scale industrial  
33 development.

#### 34       **4.2.3   Transportation**

35       The impacts of the Proposed Action and alternatives on each component of  
36 the transportation system, including roadways, airspace and air traffic, and  
37 railroads, are presented in this section. Possible mitigation measures are  
38 discussed for those components likely to experience substantial adverse  
39 impacts under the Proposed Action or any alternative.

40       **Roadways.** Reuse-related effects on roadway traffic were assessed by  
41 estimating the number of trips generated by each land use considering land  
42 use, employees, visitors, residents, and service vehicles associated with  
43 construction and all other on-site activities for the Proposed Action and each  
44 alternative. Principal trip-generating land uses included industrial,  
45 warehousing, office, commercial, residential, and airport uses.

The transportation analysis used the standard analysis techniques of trip generation, trip distribution, and traffic assignment. Trip generation was based on applying the trip rates from the ITE Trip Generation Manual, 5th Edition, to the existing and proposed land uses to determine total daily trips. Daily trips (shown in Table 4.2-1) were distributed to and from the project site based on existing travel patterns for commuters and on the location of residences of base personal. It was assumed that the residential choices of reuse-related employees would correspond to those of current base personnel.

**Table 4.2-1. Summary of Total Daily Trips Generated by Various Reuse Alternatives**

Reuse Alternatives	1999	2004	2014
Proposed Action			
Study Area	4,264	6,193	13,487
Total Planning Area	35,475	44,041	58,139
Aviation with Industrial Park			
Study Area	3,969	8,675	13,570
Total Planning Area	35,180	46,517	58,216
Aviation with Mixed Use			
Study Area	5,312	7,217	9,828
Total Planning Area	25,616	31,891	34,662
No-Action			
Study Area	2,017	2,023	2,035
Total Planning Area	23,007	27,537	28,068

Based on the results of the trip distribution analysis discussed above, trips were assigned to the surrounding roadway network along existing travel routes to the study area, including State Route 317 (SR-317) and Alum Creek Drive.

Growth in background traffic on various roadways was estimated based on projections of population and employment in the study area and surrounding Columbus metropolitan region. Estimates of growth in background traffic were added to the project-generated traffic to identify total future traffic volumes for each reuse alternative. The primary source for these projections was the Highway Performance Monitoring System (HPMS) growth rates developed for the area by ODOT.

Traffic impacts were determined based on the LOS changes for each of the key roadways (Table 4.2-2). Analyses were conducted for each reuse alternative and the No-Action Alternative. The latter alternative was included to identify the incremental impact of project-generated traffic over the traffic expected as a result of other growth in the Columbus region. In

Table 4.2-2. Peak Hour Traffic Volumes and LOS on Key Roads - Proposed Action

Roadway	Segment	Capacity <sup>(a)</sup>	1994		1999		2004		2014	
			Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS
Alum Creek	RANGB to Rohr	3,400	308	A	737	A	1,020	A	1,514	B
Alum Creek	Rohr to Groveport	3,400	315	A	745	A	1,029	A	1,524	B
Alum Creek	Groveport to I-270	3,400	1,047	A	1,354	B	1,598	B	2,084	C
Groveport	I-270 to Alum Creek	2,587	939	C	1,212	D	1,437	D	1,894	E
Groveport	Alum Creek to Pontius	2,587	627	B	867	C	1,056	C	1,431	D
Groveport	Pontius to SR-317	2,587	618	B	724	C	823	C	1,038	C
Groveport	East of SR-317	2,587	419	B	687	B	885	C	1,262	D
Lockbourne	SR-317 to Rohu	2,587	202	A	258	A	304	A	400	B
Lockbourne	Rohr to Rathmell	2,587	374	A	448	B	514	B	656	B
Lockbourne	Rathmell to I-270	2,587	59	A	100	A	130	A	188	A
Parsons	SR-317 to Rathmell	2,587	127	A	175	A	213	A	289	A
Parsons	Rathmell to I-270	2,587	241	A	301	A	352	A	458	B
SR-317	Hendron to Groveport	3,826	232	A	358	A	448	A	615	A
SR-317	Groveport to Rohr	3,826	318	A	798	C	620	A	930	A
SR-317	Rohr to Alum Creek	3,826	781	C	1,351	D	963	A	1,363	B
SR-317	Alum Creek To Shook	3,826	904	C	1,208	D	787	A	1,041	A
SR-317	Shook to Parsons	3,826	621	B	854	C	562	A	749	A
SR-317	Parsons to US-23	3,826	407	B	547	B	357	A	473	A
US-23	County Line to SR-317	3,826	1,662	B	1,859	B	2,065	B	2,533	C
US-23	SR-317 to I-270	3,826	1,612	B	1,804	B	2,004	B	2,458	C
I-270	West of US-23	4,251	2,618	C	2,894	C	3,197	C	3,901	D
I-270	US-23 to Alum Creek	6,376	2,181	A	2,487	B	2,788	B	3,452	C
I-270	Alum Creek to US-33	6,376	2,085	A	2,381	B	2,671	B	3,309	B

Notes: <sup>(a)</sup> The capacity for SR-317 between Groveport and US-23 is assumed to increase in 2004 as a result of planned widening of SR-317. Capacity values reflect these proposed changes.

1 addition, these analyses indicates the potential impacts on planned roadway  
2 improvements in the vicinity of the study area. Peak hour analysis assumed  
3 that approximately 10 percent of the daily trips occur during the peak hour.

4 **Airspace/Air Traffic.** The airspace analysis examines the type and level of  
5 aircraft operations projected for the Proposed Action and alternatives and  
6 compares them to the airspace configuration used under the pre-realignment  
7 reference. The impact analysis considers the relationship of the projected  
8 aircraft operations to the operational capacity of the airport, using criteria  
9 that have been established by the FAA for determining airport service  
10 volumes. Potential effects on airspace use were assessed, based on the  
11 extent to which the Proposed Action or alternatives could (1) require  
12 modifications to the airspace structure or air traffic control systems and/or  
13 facilities: (2) restrict, limit, or otherwise delay other air traffic in the region:  
14 or (3) encroach on other airspace areas and uses.

15 The FAA is ultimately responsible for evaluation of the specific effects that  
16 the reuse of an airport will have on the safe and efficient use of navigable  
17 airspace by aircraft. Such a study is based on details from the airport  
18 proponent's Airport Layout Plan (ALP) and consists of an airspace analysis,  
19 a flight safety review, and a review of the potential effect of the proposal on  
20 air traffic control and air navigational facilities. Once this study is  
21 completed, the FAA can then determine the actual requirements for  
22 facilities, terminal and enroute airspace, and instrument flight procedures.

23 **4.2.3.1 Proposed Action.** The impacts of the Proposed Action on each  
24 component of the transportation system, including roadways, airspace and  
25 air traffic, and railroads, are presented in this section. Possible mitigation  
26 measures are discussed for those components likely to experience  
27 substantial adverse impacts under the Proposed Action or any alternative.

#### 28 **Roadways.**

29 Regional. Regional interstate roadways serving Rickenbacker ANGB would  
30 experience a decline in LOS over the next twenty years during afternoon  
31 peak hours as a result of background traffic growth and increased reuse  
32 activities. However, no segments of interstate would decline to an  
33 unacceptable LOS during this time period.

34 Local. Base use would generate 13,487 daily vehicular trips, an increase of  
35 11,457 daily trips, by the year 2014. Minor LOS problems would emerge by  
36 1999 on some segments of SR-317 in the vicinity of Rickenbacker ANGB.  
37 Two segments along SR-317 would operate at LOS D during the afternoon  
38 peak hour: SR-317 from Alum Creek to Shook, and SR-317 from Rohr to  
39 Alum Creek. In addition, minor congestion is expected to occur along  
40 Groveport Road by 2014 as a result of planned developed.

41 On-Base. The proposed action assumes that existing roadways would be  
42 used during the construction period. As part of the eventual site plan, a  
43 coordinated circulation concept must be developed at this point. Without a  
44 specific on-base plan, it is not possible to assess the traffic impacts of on-  
45 base roadways for any alternative.

1       **Airspace/Air Traffic.** The effects of the proposed action upon the pre-  
2       realignment reference airspace would not be substantial. The airspace  
3       immediately to the east of Rickenbacker ANGB would continue to contain  
4       the instrument approach maneuvering space for IFR arrival/departure  
5       corridors, radar vectoring, published approaches and multiple approaches.  
6       Navigational aids would be upgraded and an additional runway added to  
7       increase the capacity for additional, locally based air traffic and itinerant  
8       traffic.

9       The control of the increased air traffic under the direction of the Columbus  
10      TRACON would be easily absorbed through existing capacity and capability.  
11      There are no identifiable effects to the existing regional airspace facility  
12      capacity, or other airspace areas and uses as a result of the proposed  
13      action.

14      **Air Transportation.** Since all of the proposed nonmilitary reuses of  
15      Rickenbacker ANGB involve cargo aircraft only, there would be no impacts  
16      anticipated on air transportation at local airports.

17      **Other Transportation Modes.** For the reason discussed under air  
18      transportation above, there would be no impacts on passenger rail service  
19      as a result of the Proposed Action or any of the alternatives. However, the  
20      anticipated increase in air cargo service at Rickenbacker ANGB may have a  
21      slight impact on rail cargo service in the area. A potential adverse impact  
22      could result from competition for transportation of goods that could be  
23      shipped to the warehouses on or near the base, although there is currently  
24      no rail cargo service to the base to compete with the air service. A  
25      beneficial impact on rail transportation would be possible if the inter-modal  
26      facility described in Section 2.6 is developed.

27      **Cumulative Impacts.** The transportation projects discussed in Section 2.6,  
28      in concert with the Proposed Action, would improve the overall  
29      transportation capabilities of the Columbus area. There are no other  
30      proposed projects at this time which would have any cumulative impacts on  
31      transportation.

32      **Mitigation Measures.** The planned reconstruction of SR-317 would  
33      mitigate the LOS problems identified on various segments of SR-317 which  
34      are projected to occur over the next five years. The development of a  
35      four-lane cross section would result generally in an acceptable LOS along  
36      SR-317. Ongoing planning studies will determine future improvements to  
37      SR-317, including re-routing. In addition, widening of portions of Groveport  
38      Road would be required.

#### 39      **4.2.3.2. Aviation with Industrial Park Alternative.**

40      **Roadways.** By 2014, jobs generated under this alternative are expected to  
41      add about 4,850 new employees to the surrounding roadway network. Base  
42      reuse would generate 13,570 daily vehicular trips, an increase of 11,550  
43      daily trips, by the year 2014. It is expected that the resultant traffic impacts  
44      of this alternative would be similar to those forecast for the Proposed Action  
45      (Table 4.2-3).

**Table 4.2-3. Peak Hour Traffic Volumes and LOS on Key Roads - Aviation with Industrial Park Alternative**

Roadway	Segment	Capacity <sup>(a)</sup>	1994		1999		2004		2014	
			Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS
Alum Creek	RANGB to Rohr	3,400	308	A	716	A	1,120	A	1,528	B
Alum Creek	Rohr to Groveport	3,400	315	A	724	A	1,129	B	1,538	B
Alum Creek	Groveport to I-270	3,400	1,047	A	1,344	B	1,649	B	2,091	C
Groveport	I-270 to Alum Creek	2,587	939	C	1,203	D	1,495	D	1,901	E
Groveport	Alum Creek to Pontius	2,587	627	B	858	C	1,114	D	1,438	D
Groveport	Pontius to SR-317	2,587	618	B	722	C	837	C	1,039	C
Groveport	East of SR-317	2,587	419	B	676	B	959	C	1,270	D
Lockbourne	SR-317 to Rohr	2,587	202	A	256	A	316	A	401	B
Lockbourne	Rohr to Rathmell	2,587	374	A	446	B	526	B	657	B
Lockbourne	Rathmell to I-270	2,587	59	A	98	A	142	A	189	A
Parsons	SR-317 to Rathmell	2,587	127	A	173	A	225	A	290	A
Parsons	Rathmell to I-270	2,587	241	A	299	A	364	A	459	B
SR-317	Hendron to Groveport	3,826	232	A	352	A	474	A	619	A
SR-317	Groveport to Rohr	3,826	318	A	776	C	685	A	938	A
SR-317	Rohr to Alum Creek	3,826	781	C	1,327	D	1,034	A	1,373	B
SR-317	Alum Creek to Shook	3,826	904	C	1,197	D	818	A	1,045	A
SR-317	Shook to Parsons	3,826	621	B	845	C	586	A	753	A
SR-317	Parsons to US-23	3,826	407	B	542	B	371	A	475	A
US-23	County Line to SR-317	3,826	1,662	B	1,858	B	2,071	B	2,534	C
US-23	SR-317 to I-270	3,826	1,612	B	1,803	B	2,010	B	2,459	C
I-270	West of US-23	4,251	2,618	C	2,894	C	3,198	C	3,901	D
I-270	US-23 to Alum Creek	6,376	2,181	A	2,483	B	2,808	B	3,455	C
I-270	Alum Creek to US-33	6,376	2,085	A	2,377	B	2,691	B	3,312	B

Notes: <sup>(a)</sup> The capacity for SR-317 between Groveport and US-23 is assumed to increase in 2004 as a result of planned widening of SR-317. Capacity values reflect these proposed changes.

**Airspace/Air Traffic.** The distribution of increased operations during the planning period for this alternative would be similar to the distribution of increased operations under the Proposed Action and therefore would produce any identifiable effects on the pre-realignment regional airspace facility capacity, or other airspace areas and uses.

**Cumulative Impacts.** The transportation projects discussed in Section 2.6, together with the Aviation with Industrial Park Alternative, would improve the overall transportation capabilities of the Columbus area. There are no other proposed projects at this time that would have any cumulative impacts on transportation.

#### **Mitigation Measures.**

**Roadways.** As outlined for the Proposed Action, widening of several roadway segments would be required to provide an adequate LOS as a result of base development.

#### **4.2.3.3. Aviation with Mixed Use Alternative.**

**Roadways.** By 2014, jobs generated under this alternative are expected to add about 2,480 new employees to the surrounding roadway network. Base reuse would generate 9,828 daily vehicular trips, an increase of 7,808 daily trips, by the year 2014. Projected traffic impacts would be less severe under this alternative than the Proposed Action or Aviation with Industrial Park Alternative. (Table 4.2-4).

**Airspace/Air Traffic.** The increased operations forecast under this alternative would not produce any identifiable effects on the pre-realignment regional airspace facility capacity, or other airspace areas and uses.

**Cumulative Impacts.** The transportation projects discussed in Section 2.6, together with the Aviation with Mixed Use Alternative, would improve the overall transportation capabilities of the Columbus area. There are no other proposed projects at this time that would have any cumulative impacts on transportation.

#### **Mitigation Measures.**

**Roadways.** As outlined for the Proposed Action, widening of several roadway segments may be required to provide an adequate LOS as a result of base development. However under this alternative, no roadway segment would operate at LOS F

#### **4.2.3.4. No-Action Alternative.**

**Roadways.** By 2014, jobs generated in the ROI are expected to add about 1,070 new employees to the surrounding roadway network. Base reuse would generate 2,035 daily vehicular trips, an increase of 15 daily trips, by the year 2014. This would result in less impact on traffic than the Proposed Action or any other alternative (Table 4.2-5).

**Table 4.2-4. Peak Hour Traffic Volumes and LOS on Key Roads - Aviation with Mixed Use Alternative**

Roadway	Segment	Capacity <sup>(a)</sup>	1994		1999		2004		2014	
			Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS
Alum Creek	RANGB to Rohr	3,400	308	A	683	A	811	A	1,051	A
Alum Creek	Rohr to Groveport	3,400	315	A	691	A	820	A	1,061	A
Alum Creek	Groveport to I-270	3,400	1,047	A	1,327	B	1,494	B	1,852	B
Groveport	I-270 to Alum Creek	2,587	939	C	1,184	D	1,334	D	1,641	D
Groveport	Alum Creek to Pontius	2,587	627	B	839	C	953	C	1,178	D
Groveport	Pontius to SR-317	2,587	618	B	717	C	798	C	977	C
Groveport	East of SR-317	2,587	419	B	651	B	753	C	938	C
Lockbourne	SR-317 to Rohr	2,587	202	A	252	A	284	A	349	A
Lockbourne	Rohr to Rathmell	2,587	374	A	442	B	494	B	605	B
Lockbourne	Rathmell to I-270	2,587	59	A	94	A	110	A	137	A
Parsons	SR-317 to Rathmell	2,587	127	A	169	A	193	A	238	A
Parsons	Rathmell to I-270	2,587	241	A	295	A	332	A	407	B
SR-317	Hendron to Groveport	3,826	232	A	344	A	395	A	497	A
SR-317	Groveport to Rohr	3,826	318	A	727	C	487	A	633	A
SR-317	Rohr to Alum Creek	3,826	781	C	1,273	D	817	A	1,039	A
SR-317	Alum Creek to Shook	3,826	904	C	1,174	D	725	A	902	A
SR-317	Shook to Parsons	3,826	621	B	827	C	512	A	638	A
SR-317	Parsons to US-23	3,826	407	B	531	B	328	A	408	A
US-23	County Line to SR-317	3,826	1,662	B	1,856	B	2,052	B	2,506	C
US-23	SR-317 to I-270	3,826	1,612	B	1,801	B	1,991	B	2,431	C
I-270	West of US-23	4,251	2,618	C	2,893	C	3,195	C	3,896	D
I-270	US-23 to Alum Creek	6,376	2,181	A	2,477	B	2,746	B	3,360	B
I-270	Alum Creek to US-33	6,376	2,085	A	2,371	B	2,629	B	3,217	B

Notes: <sup>(a)</sup> The capacity for SR-317 between Groveport and US-23 is assumed to increase in 2004 as a result of planned widening of SR-317. Capacity values reflect these proposed changes.



**Table 4.2-5. Peak Hour Traffic Volumes and LOS on Key Roads - No Action Alternative**

Roadway	Segment	Capacity <sup>(a)</sup>	1994		1999		2004		2014	
			Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS	Peak Hour Volume	LOS
Alum Creek	RANGB to Rohr	3,400	308	A	496	A	532	A	617	A
Alum Creek	Rohr to Groveport	3,400	315	A	504	A	541	A	627	A
Alum Creek	Groveport to I-270	3,400	1,047	A	1,234	B	1,354	B	1,636	B
Groveport	I-270 to Alum Creek	2,587	939	C	1,098	C	1,207	D	1,457	D
Groveport	Alum Creek to Pontius	2,587	627	B	753	C	826	C	994	C
Groveport	Pontius to SR-317	2,587	618	B	697	B	768	C	933	C
Groveport	East of SR-317	2,587	419	B	541	B	590	B	703	C
Lockbourne	SR-317 to Rohr	2,587	202	A	235	A	258	A	312	A
Lockbourne	Rohr to Rathmell	2,587	374	A	425	B	468	B	568	B
Lockbourne	Rathmell to I-270	2,587	59	A	77	A	84	A	100	A
Parsons	SR-317 to Rathmell	2,587	127	A	152	A	167	A	201	A
Parsons	Rathmell to I-270	2,587	241	A	278	A	306	A	370	A
SR-317	Hendron to Groveport	3,826	232	A	296	A	323	A	386	A
SR-317	Groveport to Rohr	3,826	318	B	508	B	308	A	356	A
SR-317	Rohr to Alum Creek	3,826	781	C	1,034	C	622	A	735	A
SR-317	Alum Creek to Shook	3,826	904	C	1,072	C	641	A	772	A
SR-317	Shook to Parsons	3,826	621	B	745	C	445	A	534	A
SR-317	Parsons to US-23	3,826	407	B	483	B	289	A	347	A
US-23	County Line to SR-317	3,826	1,662	B	1,844	B	2,035	B	2,480	C
US-23	SR-317 to I-270	3,826	1,612	B	1,789	B	1,974	B	2,405	C
I-270	West of US-23	4,251	2,618	C	2,892	C	3,193	C	3,892	D
I-270	US-23 to Alum Creek	6,376	2,181	C	2,439	B	2,690	B	3,273	B
I-270	Alum Creek to US-33	6,376	2,085	A	2,333	B	2,573	B	3,130	B

Notes: <sup>(a)</sup> The capacity for SR-317 between Groveport and US-23 is assumed to increase in 2004 as a result of planned widening of SR-317. Capacity values reflect these proposed changes.

**Airspace/Air Traffic.** The incremental increase in operations under the No-Action Alternative would not produce identifiable effects on the pre-realignment regional airspace facility capacity, or other airspace areas and uses.

**Cumulative Impacts.** No substantial cumulative impacts would result from the No-Action Alternative.

#### **Mitigation Measures.**

**Roadways.** As outlined for the Proposed Action, widening of several roadway segments may be required to provide an adequate LOS. However, no roadway segments operate at LOS F or below as a result of this alternative.

#### **4.2.4 Utilities**

Direct and indirect changes in future utility demand for each alternative were estimated based on historic, pre-realignment, and per-capita average daily use on Rickenbacker ANGB and in the ROI. These factors were applied to projections of numbers of future residents and employees associated with each of the alternatives. Table 4.2-6 shows the projected changes in utility demand for 5, 10, and 20 years after realignment. The figures shown for the forecasted ROI demand also represent the No-Action Alternative and generally reflect the change expected in utility usage in the area without redevelopment of the base. The other alternatives reflect the growth anticipated due to base reuse.

Future water demands were developed from the City of Columbus projections identified in "Water Beyond 2000." Other future utility demands were developed using historic consumption patterns and system wide average annual growth rates.

**4.2.4.1. Proposed Action.** Table 4.2-6 presents a summary of ROI utility demands and percentage increases associated with the Proposed Action.

**Water Demand.** The Proposed Action would increase the total potable water demand in the ROI by 0.17 million gallons per day (MGD) to 180.47 GD in 2014. With the capacity to process 220 MGD of potable water, Columbus would be able to meet the 0.09 percent increase in demand in 2014.

On-base potable water demands would increase by 0.076 MGD from approximately 0.017 MGD at realignment in 1994 to 0.25 MGD in 2014. Reuse of the on-base system may require certain improvements depending on the type and location of industrial development that occurs. Once specific development proposals are identified, specific improvements can be designed through coordination with the local purveyor.

**Wastewater.** The Proposed Action would increase the total projected wastewater flow in the ROI by 0.14 MGD, or 0.07 percent, by 2014. The ROI's wastewater flow is forecast to increase to 212.54 MGD by 2014. The ROI has a current treatment capacity of 174 MGD, and the City of Columbus will continue to plan facility expansions to meet the demand.

1 **Table 4.2-6. Total Projected Utility Consumption in the ROI**

	1999	Percent Increase	2004	Percent Increase	2014	Percent Increase
<b>Water Consumption (MGD)</b>						
No-Action Alternative <sup>(a)</sup>	158.3		168.3		180.3	
Proposed Action	0.10	0.06	0.11	0.06	0.17	0.09
Aviation with Industrial Park	0.04	0.02	0.10	0.06	0.17	0.09
Aviation with Mixed Use	0.09	0.07	0.14	0.09	0.17	0.10
<b>Wastewater Treatment (MGD)</b>						
No-Action Alternative <sup>(a)</sup>	186.44		198.24		212.40	
Proposed Action	0.08	0.04	0.09	0.05	0.14	0.07
Aviation with Industrial Park	0.03	0.02	0.08	0.04	0.14	0.06
Aviation with Mixed Use	0.07	0.04	0.11	0.06	0.14	0.06
<b>Solid Waste Disposal (tons/day)</b>						
No-Action Alternative <sup>(a)</sup>	2,575.00		2,784.00		3,014.00	
Proposed Action	4.27	0.17	4.8	0.17	10.59	0.35
Aviation with Industrial Park	2.75	0.11	6.37	0.23	10.55	0.35
Aviation with Mixed Use	4.38	0.17	5.70	0.21	7.18	0.24
<b>Electrical Consumption (MWH/day)</b>						
No-Action Alternative <sup>(a)</sup>	3,221.00		3,351.00		3,630.00	
Proposed Action	29.85	0.93	35.70	1.06	89.55	2.47
Aviation with Industrial Park	22.64	0.70	52.38	1.56	89.12	2.46
Aviation with Mixed Use	23.22	0.72	29.56	0.88	39.34	1.08
<b>Natural Gas Consumption (MMCF/day)</b>						
No-Action Alternative <sup>(a)</sup>	1.51		1.57		1.70	
Proposed Action	0.30	19.68	0.36	23.48	0.94	55.48
Aviation with Industrial Park	0.25	16.64	0.56	35.68	0.94	55.20
Aviation with Mixed Use	0.27	17.63	0.34	21.87	0.46	26.80

2 Notes: Values for Proposed Action and reuse alternatives represent direct project-related demand beyond realignment  
3 baseline.

4 <sup>(a)</sup> Represents total demand forecasted for the ROI for the years indicated, based on demand projected by local utility  
5 suppliers.

6 ROI = Region of Influence.

7 MGD = Million gallons per day

8 MWH = Megawatt hours.

9 MMCF = Million cubic feet.

Wastewater flows on base would increase by 0.065 MGD with reuse from approximately 0.30 MGD in 1994 to 0.37 MGD in 2014. New industrial users may be required to provide industrial pretreatment systems prior to discharging to Columbus's system.

**Solid Waste.** The Proposed Action for the study area would generate 10.59 tons per day (T/day) of solid waste in the ROI by 2014. Solid waste disposal rates in the ROI would be increased from 3,014 T/day to 3,025 T/day in 2014. The lifespan of existing landfills in the ROI would be affected slightly by this 0.35 percent increase due to base reuse. However, current planning efforts are identifying areas for expansion or construction of new landfills to serve the ROI.

Solid waste generation on base would increase with reuse by 7.4 T/day, from 2.1 T/day in 1994 to 9.5 T/day in 2014.

### **Energy**

Electricity. Project-related demands of 89.55 megawatt hours per day (MWH/day) would increase electrical consumption in the ROI to 3,720 MWH/day. This increase of 2.47 percent would be met by Columbus Southern Power and South Central Power.

By the year 2014, the Proposed Action would increase on-base consumption by 65.21 MWH/day, from 19.07 MWH/day at realignment (1994) to 84.28 MWH/day. The existing substation and distribution system would require expansion to support the additional demand of the proposed reuses. South Central Power is developing plans to meet those demands. Individual facilities would need to be metered to monitor costs and charge individual users, and appropriate utility corridors and easements would need to be established.

Natural Gas. The Proposed Action for the study area would generate a demand of 0.94 million cubic feet per day (MMCF/day) by the year 2014. Natural gas demands in the ROI are forecast to equal 1.7 MMCF/day by the year 2014 without base reuse. The Proposed Action would increase the demand on the Columbia Gas Grovesport District to 2.64 MMCF/day. This increase of 55.48 percent would be met by Columbia Gas.

Natural gas use would increase by 0.870 MMCF/day with reuse from 0.066 to 0.884 MMCF/day. The existing on-base natural gas distribution system would require some changes to accommodate the reuse of the base. Individual gas meters would be required at most facilities. Establishment of appropriate utility corridors and easements also would be required.

**Cumulative Impacts.** Utility demands in the area would increase as a result of other developments, even without reuse of Rickenbacker ANGB. The suppliers have indicated that these demands could be adequately met.

**Mitigation Measures.** Following are potential mitigation measures for reducing impacts due to the Proposed Action:

Mitigation measures would address pretreatment of wastewater generated by future industrial and commercial reuses of Rickenbacker ANGB. The type(s)

and extent of mitigation measures cannot be specified at the present time, because they would be dependent on the chemical and physical characteristics of the wastewater. New users would be required to obtain discharge permits from Columbus.

Recycling and/or reuse of inert demolition/construction wastes, such as wood, metals, concrete, and asphalt, would decrease potential impacts on landfills.

No adverse impacts on water or energy are expected from the Proposed Action, and no mitigation measures would be necessary for these resources.

**4.2.4.2. Aviation with Industrial Park Alternative.** Table 4.2-6 presents a summary of ROI utility demands and percentage increases associated this alternative.

**Water Demand.** The Aviation with Industrial Park Alternative would increase potable water demand in the ROI by 0.17 MGD to 180.47 MGD in 2014. With the capacity to process 220 MGD of potable water, Columbus would be able to meet the 0.09 percent increase in demand.

On-base potable water demands would increase by 0.076 MGD with reuse from approximately 0.17 MGD at realignment in 1994 to 0.25 MGD in 2014. Reuse of the on-base system may require improvements, depending on the type and location of industrial development that occurs. Once specific development proposals are identified, improvements can be designed through coordination with the local surveyor.

**Wastewater.** This alternative would increase the total projected wastewater flow in the ROI by 0.14 MGD, or 0.06 percent, by 2014. ROI wastewater flow is forecast to increase to 212.54 MGD by 2014. The ROI treatment capacity currently is 174 MGD; the City of Columbus will continue to plan facility expansions to meet the demand.

Wastewater flows generated by this alternative on base would increase by 0.065 MGD from approximately 0.30 MGD in 1994 to 0.37 MGD in 2014. New industrial users may be required to provide industrial pretreatment systems prior to discharging to Columbus's system.

**Solid Waste.** The Aviation with Industrial Park Alternative would generate 10.55 T/day of solid waste in the ROI by 2014. Solid waste disposal rates in the ROI would increase from 3,014 T/day to 3,024 T/day by 2014. The lifespan of existing landfills in the ROI will be slightly affected with this 0.35 percent increase. Current planning efforts are identifying new areas for expansion or construction of landfills to serve the ROI.

Solid waste generation on base would increase with reuse by 7.38 T/day, from 2.1 T/day in 1994 to 9.48 T/day in 2014.

#### **Energy**

Electricity. Project-related demands of 89.12 MWH/day would increase electrical consumption in the ROI to 3,719 MWH/day. This increase of 2.46

percent would be met by Columbus Southern Power and South Central Power.

Demands for electricity on base would increase by 64.85 MWH/day with reuse from 19.07 MWH/day at realignment (1994) to 83.92 MWH/day in 2014. The existing substation and distribution system would require expansion to support the reuse of Rickenbacker ANGB. South Central Power is developing plans to meet those demands. Individual facilities would need to be metered to monitor costs and charge individual users, and appropriate utility corridors and easements also would need to be established.

**Natural Gas.** The Aviation with Industrial Park Alternative would generate a demand of 0.94 MMCF/day in the ROI by 2014. Natural gas demand in the ROI is to reach 1.70 MMCF/day by 2014 without base reuse. This alternative would increase the demand on the Columbia Gas district to 2.64 MMCF/day. This increase of 55.2 percent would be met by Columbia Gas.

Natural gas use on-base would increase by 0.808 MMCF/day from 0.066 to 0.874 MMCF/day. The existing on-base natural gas distribution system would require some changes to accommodate the reuse of the base. Individual gas meters would be required at most facilities. Establishment of appropriate utility corridors and easements also would be required.

**Cumulative Impacts.** Utility demands in the area would increase as a result of other developments, even without reuse of Rickenbacker ANGB. The suppliers have indicated that these demands could be adequately met.

**Mitigation Measures.** Potential mitigation measures for reducing impacts due to the Aviation with Industrial Park Alternative would be the same as identified for the Proposed Action (Section 4.2.4.1).

**4.2.4.3. Aviation with Mixed Use Alternative.** Table 4.2-6 presents a summary of ROI utility demands and percentage increases associated this alternative.

**Water Demand.** The Aviation with Mixed Use Alternative would increase potable water demand in the ROI by 0.17 MGD, to 180.47 MGD in 2014. With the capacity to process 220 MGD of potable water, Columbus would be able to meet this 0.10 percent increase.

Potable water demands on base would increase by 0.123 MGD with reuse from approximately 0.17 MGD at realignment in 1994 to 0.29 MGD in 2014. Reuse of the on-base system may require improvements, depending on the types and locations of industrial development that occur.

Once specific development proposals are identified, improvements can be designed through coordination with the local purveyor.

**Wastewater.** This alternative would increase the total wastewater flow in the ROI by 0.14 MGD, or 0.06 percent, by 2014. ROI wastewater flow is forecast to increase to 212.54 MGD by 2014. The ROI has a treatment capacity of 174 MGD; the City of Columbus will continue to plan facility expansions to meet increased demand.

Wastewater flows on base would increase by 0.098 MGD with reuse from approximately 0.30 MGD in 1994 to 0.40 MGD in 2014. New industrial users may be required to provide industrial pretreatment systems prior to discharging to Columbus's system.

**Solid Waste.** The Aviation with Mixed Use Alternative would generate 7.18 T/day of solid waste in the ROI by 2014. Solid waste disposal rates in the ROI would increase from 3,014 T/day to 3,021 T/day by 2014. The lifespan of existing landfills in the ROI would be affected slightly by this 0.24 percent increase.

Current planning efforts are identifying new areas for expansion or construction of landfills to serve the ROI.

Solid waste generation on base would increase with reuse by 4.72 T/day, from 2.1 T/day in 1994 to 6.82 T/day in 2014.

### **Energy**

**Electricity.** Project-related demands of 39.34 MWH/day would increase electrical consumption in the ROI to 3,669 MWH/day. Demands for electricity on base would increase by 18.5 MWH/day from 19.07 MWH/day at realignment (1994) to 37.57 MWH/day in the year 2014. The increase of 1.08 percent would be met by Columbus Southern Power and South Central Power.

The existing substation and distribution system would require expansion to support the reuse of Rickenbacker ANGB. South Central Power is developing plans to meet those demands. Individual facilities would need to be metered to monitor costs and charge individual users, and appropriate utility corridors and easements also would need to be established.

**Natural Gas.** The Aviation with Mixed Use Alternative would generate a demand of 0.46 MMCF/day in the ROI by 2014. Natural gas demands in the ROI are forecast to equal 1.7 MMCF/day by 2014 without base reuse. This alternative would increase the demand on the Columbia Gas Groveport District to 2.16 MMCF/day. This increase of 26.80 percent would be met by Columbia Gas.

Natural gas use on base would increase by 0.364 MMCF/day with reuse from 0.066 MMCF/day to 0.43 MMCF/day. The existing on-base natural gas distribution system would require some changes to accommodate reuse of the base. Individual gas meters would be required at most facilities. Establishment of appropriate utility corridors and easements would be required.

**Cumulative Impacts.** Utility demands in the area would increase as a result of other developments, even without reuse of Rickenbacker ANGB. The suppliers have indicated that these demands could be adequately met.

**Mitigation Measures.** Potential mitigation measures for reducing impacts due to the Aviation with Mixed Use Alternative would be the same as identified for the Proposed Action.

**4.2.4.4. No-Action Alternative.** Utility use on base would be minimal by comparison to the Proposed Action and other reuse alternatives. The disuse of utility systems, however, could result in their degradation over the long term. The following utility usage (see Table 4.2-6) was forecast using per-capita factors developed from data provided by the local utility suppliers.

**Water Demand.** Water consumption in the ROI is projected to increase from 131 MGD in 1994 to 180.3 MGD in the year 2014.

**Wastewater.** Wastewater generation in the ROI is projected to increase from 154.6 MGD in 1994 to 212.4 MGD in 2014.

**Solid Waste.** Solid waste generated in the County is expected to increase from approximately 2,570 T/day in 1994 to 3,014 T/day in 2014.

#### **Energy**

Electricity. Electricity consumption in the ROI is projected to increase from 3,095 MWH/day in 1994 to 3,630 MWH/day in the year 2014.

Natural Gas. Natural gas use in the ROI is projected to increase from 1.45 MMCF/day in 1994 to 1.70 MMCF/day in the year 2014.

**4.2.4.5 Other Land Use Concepts.** Slight changes in utility consumption would occur as a result of the land use and employment projections associated with a given plan. None of these proposals would increase utility demand to a point that would impact local utility purveyors.

### **4.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT**

This section addresses the potential impacts of existing contaminated sites on the various reuse options, and the potential for environmental impacts caused by hazardous materials/waste management practices associated with the reuse options. Hazardous materials/wastes, IRP sites, storage tanks, asbestos, pesticides, PCBs, radon, medical/biohazardous wastes, ordnance, and lead will be discussed within this section.

The U.S. Air Force is committed to the remediation of all contamination at Rickenbacker ANGB due to past Air Force activities. The Operating Location (OL) will remain after base realignment to coordinate remediation activities. Delays or restrictions in disposal and reuse of property may occur due to the extent of contamination and the results of both the risk assessment and remedial designs determined for contaminated sites. Examples of conditions resulting in land use restrictions would be the capping of landfills and the constraints from methane generation and cap integrity; as well as the location of long-term monitoring wells. These conditions would have to be considered in the layout of future development. Options to recipients include creation of parks, greenbelts, or open spaces over these areas.

Regulatory standards and guidelines have been applied in determining the impacts caused by hazardous materials/waste. The following criteria were used to identify potential impacts:



- Accidental release of friable asbestos during the demolition or modification of a structure.
- Generation of 100 kilograms (or more) of hazardous waste or 1 kilogram (or more) of an acutely hazardous waste in a calendar month, resulting in increased regulatory requirements.
- New Operational requirements or service for all UST and tank systems.
- Any spill or release of a reportable quantity of a hazardous material.
- Manufacturing of any compound that requires notifying the pertinent regulatory agency.
- Exposure of the environment or public to any hazardous material through release or disposal practices.

#### 4.3.1 Proposed Action

**4.3.1.1 Hazardous Materials Management.** The hazardous materials likely to be utilized for activities occupying the proposed land use zones are identified in Table 4.3-1. The types of hazardous materials used would be similar to those used by the base prior to and at realignment. The quantity of hazardous materials utilized under the Proposed Action would increase over the baseline conditions at realignment. The specific chemical compositions and exact use rates associated with the proposed reuse activities are not known.

**Table 4.3-1. Hazardous Material Usage by Land Use - Proposed Action**

Land Use	Operation Process	Hazardous Materials
Airfield	Aircraft refueling; utilization of runway, taxiways, corporate and private aviation facilities, aircraft parking	Aviation fuels, glycols, heating oils
Aviation support	Operations associated with aircraft maintenance and manufacturing, air transportation-related industry and warehousing, fire station, other administrative services	Fuels, solvents, paints, POL, hydraulic fluids, degreasers, corrosives, heavy metals, reactives, thinners, paints, glycols, ignitables, heating oils, cyanides
Military	Operations associated with airfield, aviation support, warehousing and offices	Fuels, glycols, heating oils, solvents, paints, POL, corrosives, metals, pesticides
Industrial	Activities associated with light industry, manufacturing, research and development, warehousing	Solvents, heavy metals, POL, corrosives, catalysts, aerosols, fuels, heating oils, ignitables, pesticides
Vacant	Activities associated with the maintenance of grounds and existing unused facilities	Paints, pesticides, heating oils, fertilizer

POL = Petroleum, oil, and lubricants.

1 If the Proposed Action were implemented, each separate organization would  
2 be responsible for the management of hazardous materials according to  
3 applicable regulations. Additionally, each organization would have to  
4 comply with SARA, Section 311, Title III, which requires that local  
5 communities be informed of the use of hazardous materials.

#### 6 **4.3.1.2 Hazardous Waste Management.**

7 Hazardous wastes would be generated under the Proposed Action from the  
8 hazardous materials and processes utilized, and would consist of waste oils,  
9 solvents, paints, thinners, and heavy metals.

10 Upon disposal of parcels, newly-generated hazardous wastes would fall  
11 under the control of the recipients. Once the responsibilities of hazardous  
12 waste management are allocated to individual organizations, proficiency  
13 with those materials and spill responses is required by OSHA regulations (29  
14 CFR). Mutual aid agreements with surrounding communities may require  
15 additional scrutiny and training of emergency staff.

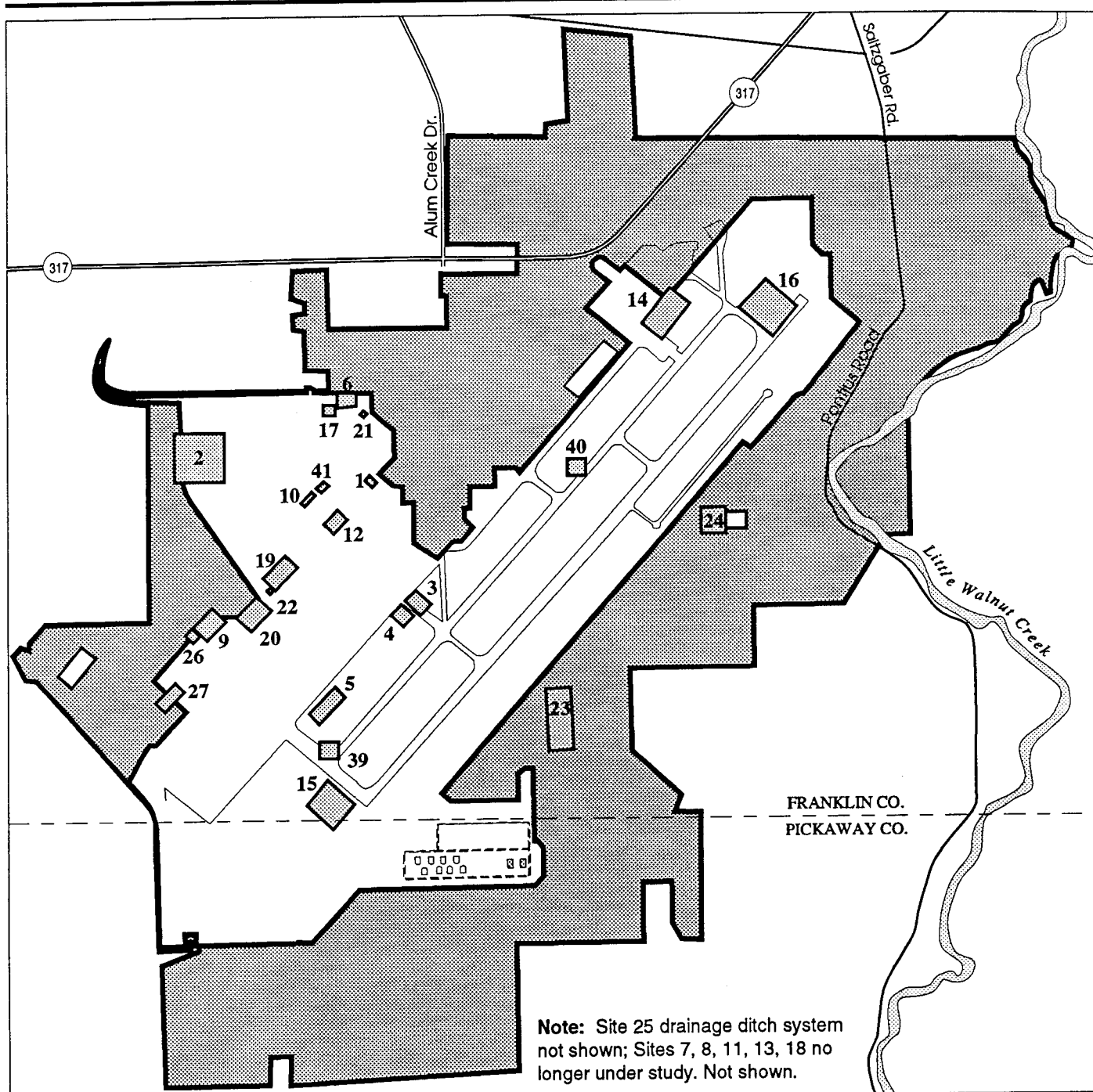
16 The presence of numerous independent owners/operators on the base would  
17 change the regulatory requirements and probably increase the regulatory  
18 burden relative to hazardous waste management. Activities associated with  
19 the Proposed Action would lead to an increase in the amount of hazardous  
20 waste generated compared to the realignment baseline.

21 **4.3.1.3 Installation Restoration Program Sites.** The U.S. Air Force is  
22 committed to continue IRP activities under DERP and CERCLA. IRP  
23 activities will be coordinated by the OL.

24 The type of development that is appropriate for property adjacent to or over  
25 an IRP site may be limited by the risk to human health and the environment  
26 posed by contaminants at the site. For example, residential development  
27 over an IRP landfill is generally not appropriate. The risk posed by IRP sites  
28 is measured by a risk assessment that analyzes the types of substances  
29 present at a site and the potential means by which the public and the  
30 environment may be exposed to them. The RD, or blueprint for remediating  
31 the IRP site, considers the results of the risk assessment and the  
32 geographical extent of the contamination.

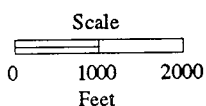
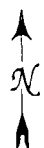
33 Disposal and reuse of some Rickenbacker ANGB properties may be delayed  
34 or limited by the extent and type of contamination at IRP sites and by  
35 current and future IRP remediation activities (Figure 4.3-1). Based on the  
36 result of IRP investigations, the Air Force may, where appropriate, place  
37 limits on land reuse through deed restrictions on conveyances and use  
38 restrictions on leases. The Air Force may also retain right of access to other  
39 properties to inspect monitoring wells or conduct other remedial activities.

40 The IRP sites within each land use area for the Proposed Action are  
41 discussed below, shown in Figures 4.3-2 and 4.3-3, and summarized in  
42 Table 4.3-2.



#### EXPLANATION

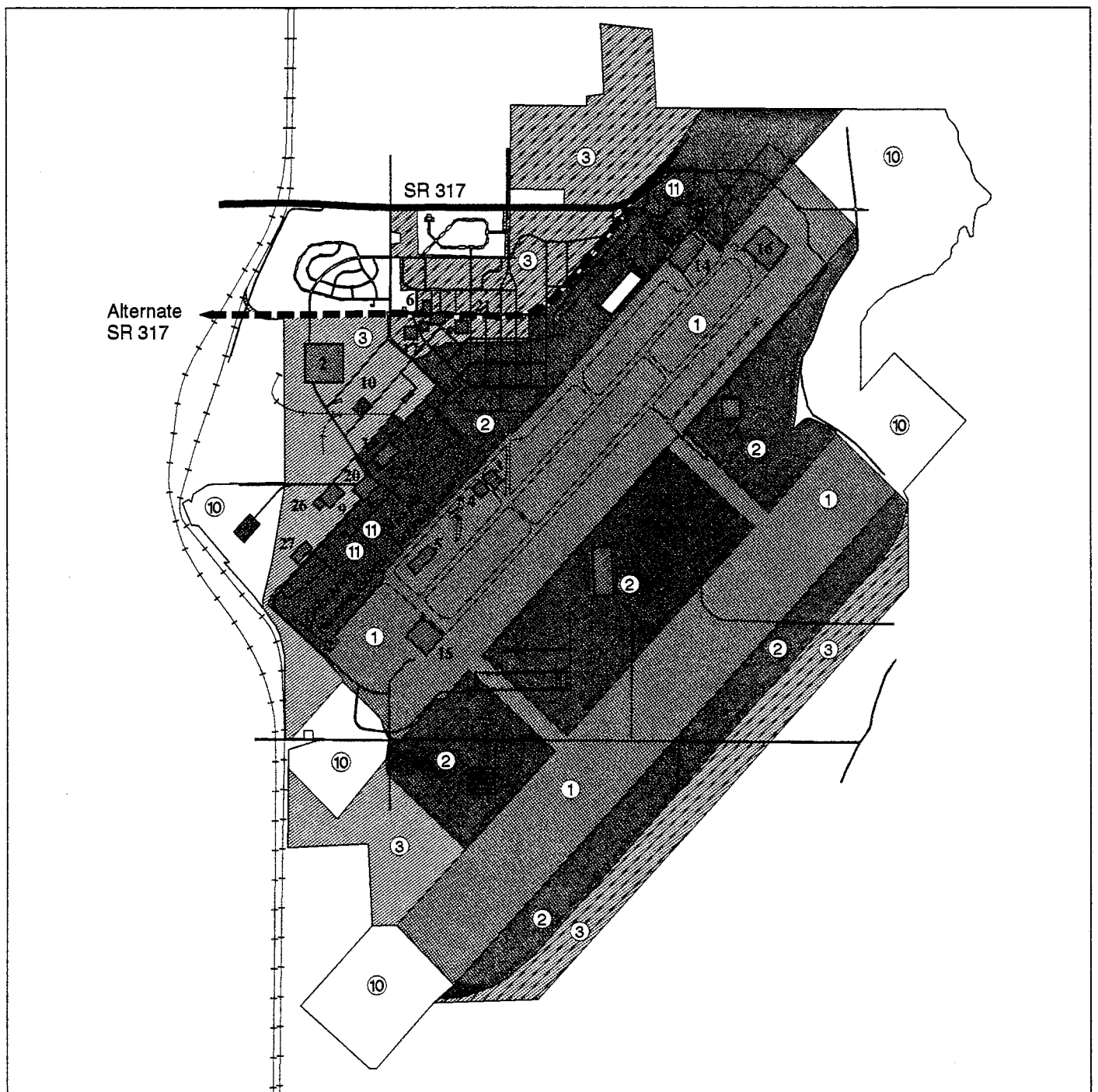
- Rickenbacker Air National Guard Base Boundary
- ▨ Rickenbacker Port Authority Boundary
- IRP Site



Source: SAIC, 1993

#### Installation Restoration Program Sites

**Figure 4.3-1**

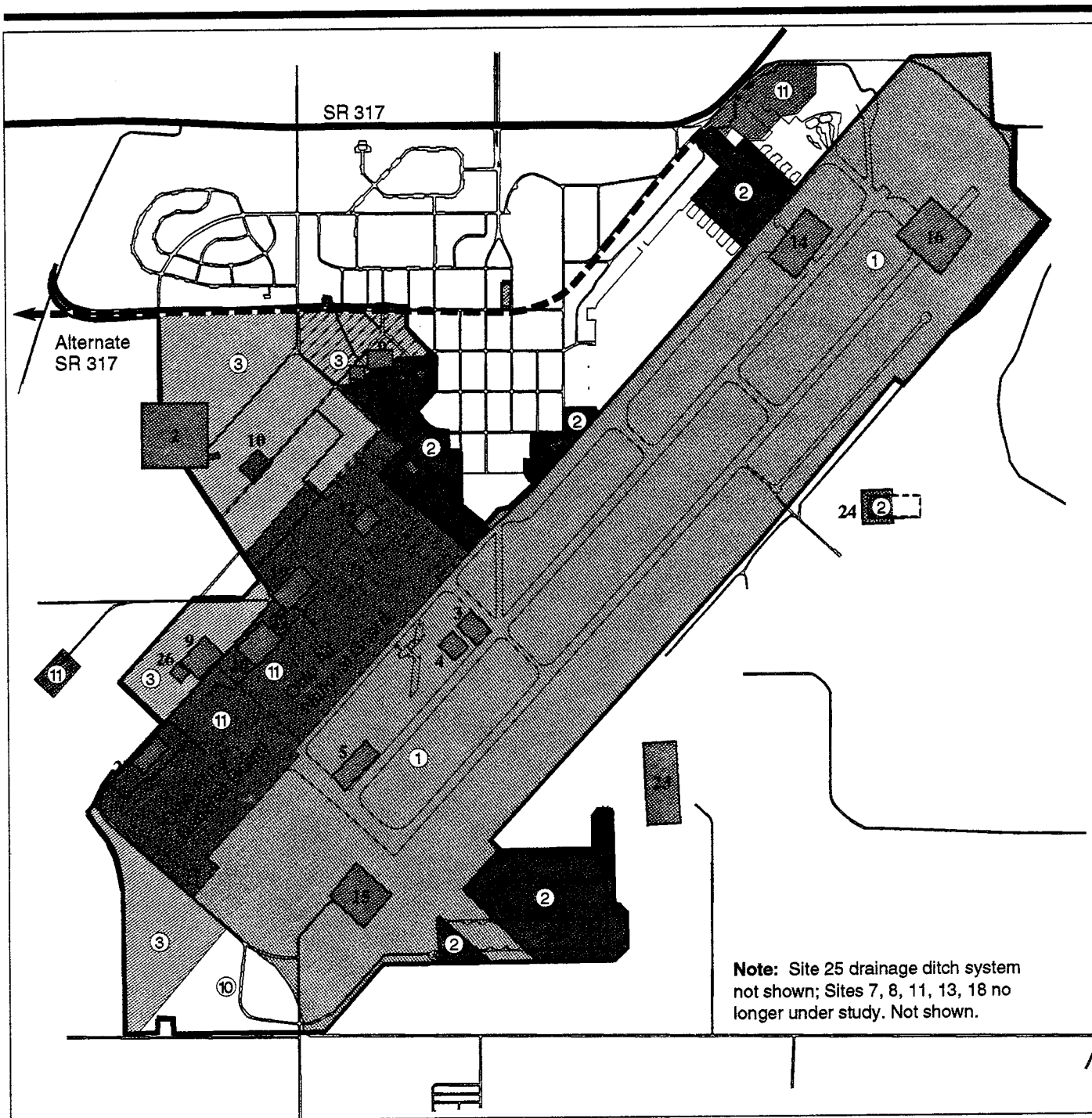


# EXPLANATION

- |                              |                            |
|------------------------------|----------------------------|
| ① Airfield                   | ⑥ *Commercial              |
| ② Aviation Support           | ⑦ *Residential             |
| ③ Industrial - General       | ⑧ *Public/Recreation       |
| ③ Industrial - Warehousing   | ⑨ *Agriculture             |
| ④ *Institutional (Medical)   | ⑩ Vacant Land              |
| ⑤ *Institutional (Education) | ⑪ Military                 |
|                              | IRP Sites                  |
|                              | Rickenbacker ANGB Boundary |
|                              | * Not Applicable           |
- Scale  
0 5000  
Feet
- North Arrow

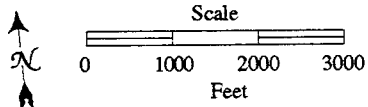
**Installation Restoration  
Program (IRP) Sites  
Proposed Action  
Total Planning Area**

**Figure 4.3-2**



#### EXPLANATION

- |                              |                            |
|------------------------------|----------------------------|
| ① Airfield                   | ⑥ *Commercial              |
| ② Aviation Support           | ⑦ *Residential             |
| ③ Industrial - General       | ⑧ *Public/Recreation       |
| ③ Industrial - Warehousing   | ⑨ *Agriculture             |
| ④ *Institutional (Medical)   | ⑩ Vacant Land              |
| ⑤ *Institutional (Education) | ⑪ Military                 |
|                              | IRP Sites                  |
|                              | Rickenbacker ANGB Boundary |



\* Not Applicable

#### Installation Restoration Program (IRP) Sites Proposed Action Study Area

**Figure 4.3-3**

Table 4.3-2. IRP Sites within Land Use Areas - Proposed Action

Proposed Land Use	IRP Sites
Airfield	JP-4 Pumphouse No. 4 (SS-03); JP-4 Pumphouse No. 5 (SS-04)
Aviation Support	Fire Training Area (FT-23); Sewage Sludge Beds (WP-24)
Industrial - General	JP-4 Bulk Storage Tank Farm (SS-02); Salvage Yard Building 906 (SS-09); South Coal Pile (SD-20); Drainage Ditch near Landfill (SD-27)
Industrial - Warehouse	Base Filling Station (SS-06); Old Entomology Lab (SS-17); Oil Change Area (SS-21)
Military	Old Drum Storage Area (SS-12); North Coal Pile (SD-19); Lube Oil Drum Storage (SS-22)

Notes: IRP Site 25 includes all the open drainage ditches throughout the base and is not associated with any specific land use.  
IRP = Installation Restoration Program.

**Airfield.** Remedial activities associated with JP-4 fuel pumping stations 4 and 5, IRP sites 3 and 4 respectively, are not anticipated to affect flight operations or runway upgrade and maintenance activities during any of the three planning phases for the Proposed Action. Should excavation be required during remediation activities, safeguards commensurate with potential to risks to health and safety should be implemented.

**Aviation Support.** Proposed activities surrounding IRP sites 23 and 24 located southeasterly from runway 05R/23L are not expected to preclude development of aviation support facilities or affect proposed aircraft operations. Continued groundwater sampling, and a follow-up RI are proposed for site 23 while a focused feasibility study is scheduled for site 24. Results of these studies may provide information resulting in land use restrictions due to monitoring well locations and remediation activities.

**Industrial - General.** All or portions of four IRP sites are within this land use zone. Construction and development during any phase of the Proposed Action in these areas may be delayed by remediation and sampling activities. All of the sites are slated for further investigation. Sites 2 and 20 will have groundwater monitoring wells installed, while sites 9 and 27 may require some degree of excavation as part of a remediation plan. Investigation of site 27 will be included in the RI for site 25.

**Industrial - Warehouse.** Focused feasibility studies and an RI could delay reuse and development of property under the Proposed Action. Further study at site 17 could result in a decision document requiring no further action after verifying absence of contaminants. Sites 6 and 21 will require an RI and FS, respectively.

**Military.** All or portions of three IRP sites are located on property planned for use by the military under the Proposed Action. None of these sites are expected to inhibit the use of this property while IRP activities on these sites continue.

1                   **4.3.1.4 Storage Tanks.** Flight and maintenance operations under the  
2 Proposed Action would require both aboveground tanks and USTs. Reused  
3 and new USTs and aboveground storage tanks that would be required by the  
4 new owner/operators would be subject to all applicable federal, state, and  
5 local regulations. These regulations include acceptable leak detection  
6 methodologies, spill and overfill protection, cathodic protection, secondary  
7 containment for the tank systems including the piping, and liability  
8 insurance. USTs that would not support reuse activities will be closed in  
9 conformance with the appropriate federal, state, and local regulations.

10 Oil/water separators used in conjunction with the study and planning areas  
11 will become the responsibility of the owner/operator. Disposal of oil water  
12 separator derived wastes also becomes the responsibility of the  
13 owner/operator and must conform to applicable federal, state, and local  
14 regulations.

15 Aboveground fuel storage tanks that would not be utilized to support the  
16 reuse activities would be purged of fumes to preclude fire hazards. The  
17 Uniform Fire Code (UFC) recommends that tanks out of service for one year  
18 be removed from the property.

19 The realignment of storage tanks would be subject to the requirements of  
20 the UFC and the Ohio Bureau of Underground Storage Tank Regulations  
21 (BUSTR).

22                   **4.3.1.5 Asbestos.** Renovation and demolition of existing structures with  
23 asbestos-containing material (ACM) may occur with reuse development.  
24 Such activities would be subject to all applicable federal, state, and local  
25 regulations to minimize potential risks to human health and the environment.

26                   **4.3.1.6 Pesticides.** Pesticide usage associated with the Proposed Action  
27 would increase from amounts used under baseline conditions, as a result of  
28 the increase in Aviation Support and Industrial land uses. Pesticide  
29 management practices would be subject to FIFRA and state regulations;  
30 therefore, no unacceptable impacts should result.

31                   **4.3.1.7 Polychlorinated Biphenyls.** All federally regulated PCB  
32 equipment and PCB-contaminated equipment will be removed and properly  
33 disposed of by the Ohio ANG prior to base realignment; therefore, these  
34 materials will not create any impacts.

35                   **4.3.1.8 Radon.** Since all radon screening survey results were below U.S.  
36 EPA's recommended mitigation level of 4 pCi/l, there would be no impact on  
37 reuse activities.

38                   **4.3.1.9 Medical/Biohazardous Waste.** All remaining materials will be  
39 removed prior to base realignment. Under the Proposed Action there would  
40 be no hospital use, so no medical/biohazardous waste would be generated.

41                   **4.3.1.10 Ordnance.** There are no explosive ordnance disposal sites  
42 operated within the current boundaries of Rickenbacker ANGB. Therefore,  
43 there would be no impacts from ordnance associated with the Proposed  
44 Action on any reuse scenario or planning phase.

1           **4.3.1.11 Lead.** Base reuse development proposals may involve the  
2 demolition or renovation of existing structures that may contain lead-based  
3 paints. Lead-based paint would be removed and disposed of in these  
4 facilities in accordance with applicable federal, state, and local regulations  
5 to minimize potential risks to human health and the environment. Property  
6 recipients would be notified of the potential of lead-based paint prior to  
7 property disposal.

8           **4.3.1.12 Cumulative Impacts.** There are no cumulative impacts  
9 associated with the reuse plans detailed in the Proposed Action with respect  
10 to hazardous materials.

11           **4.3.1.13 Mitigation Measures.** A cooperative planning body for hazardous  
12 materials and waste management could be established with the support of  
13 the new individual operators on the base. Establishment of such a body  
14 could reduce the costs of environmental compliance training, health and  
15 safety training, and waste management, and could increase recycling,  
16 minimize waste, and assist in mutual spill responses.

17           The scheduling of collection days for hazardous household products, such as  
18 paints, pesticides, and cleaners, could mitigate publicly owned treatment  
19 works and storm water discharge concerns. Articles in the local papers and  
20 classes offered by community educational programs could increase public  
21 awareness of recycling, appropriate use of pesticides, waste minimization,  
22 and waste disposal.

23           All of the IRP sites may not need to be remediated; however, all of them  
24 must be addressed and properly closed out. Active coordination between  
25 the OL and new construction planning agencies could mitigate potential  
26 problems. The presence of IRP sites may limit certain land uses within  
27 overlying areas; options could include reuse as open space, green-belt or  
28 parks.

29           Delays or restrictions in disposal and reuse of property may occur due to  
30 contamination extent, risk assessment, and remediation alternatives. These  
31 conditions would have to be considered in the layout of development and  
32 reuse plans.

33           Use of USTs that would remain in service would have to be coordinated with  
34 planning agencies to preclude construction of facilities that would endanger  
35 the integrity of the tanks or piping systems.

36           Potential impacts from PCBs could be mitigated with routine inspections of  
37 equipment, by retrofilling transformers with non-PCB-containing oils, and  
38 confirmatory testing or removal.

39           Coordination of asbestos removal or management in conjunction with  
40 construction or renovation activities could mitigate potential impacts.  
41 Compliance with NESHAP would mitigate and preclude asbestos exposures.



### 4.3.2 Aviation with Industrial Park Alternative

**4.3.2.1 Hazardous Materials Management.** Hazardous materials use and management under the Aviation with Industrial Park Alternative essentially would be the same as described for the Proposed Action.

#### 4.3.2.2 Hazardous Waste Management.

Hazardous wastes generation and management essentially would be the same as described for the Proposed Action.

**4.3.2.3 Installation Restoration Program Sites.** The IRP sites within each land use area for the Aviation with Industrial Park Alternative are summarized in Table 4.3-3 and shown in Figure 4.3-4. The IRP sites within each land use area are the same as for the Proposed Action, except that sites 23 and 24 are proposed as Vacant Land under this alternative, rather than Aviation Support. The Air Force would continue IRP activities under this alternative as described for the Proposed Action. Likewise, delays and limitations on reuse would be the same.

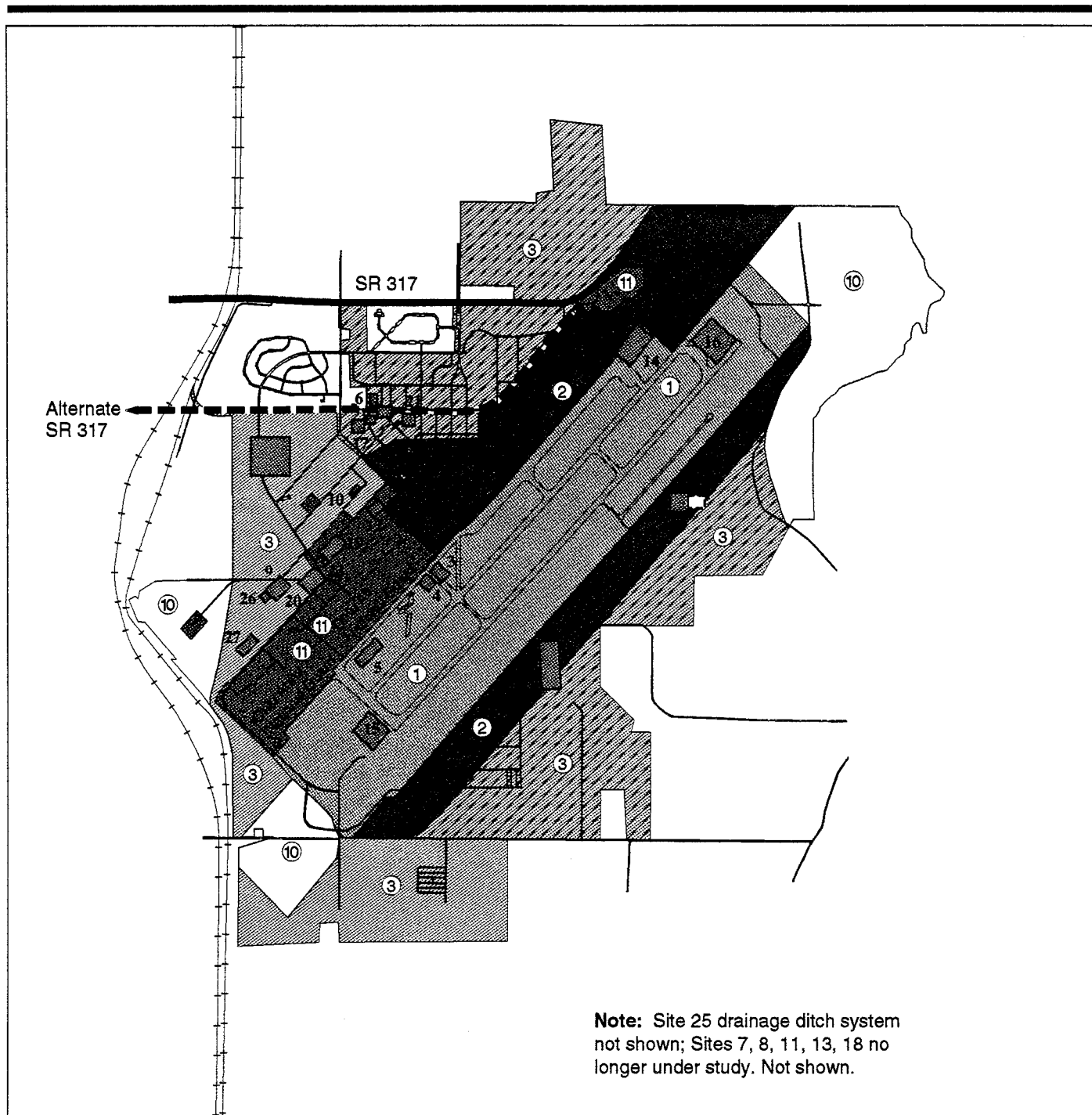
**Table 4.3-3. IRP Sites within Land Use Areas - Aviation with Industrial Park Alternative**

Proposed Land Use	IRP Sites
Airfield	JP-4 Pumphouse No. 4 (SS-03); JP-4 Pumphouse No. 5 (SS-04)
Vacant Land	Fire Training Area (FT-23); Sewage Sludge Beds (WP-24)
Industrial - General	JP-4 Bulk Storage Tank Farm (SS-02); Salvage Yard Building 906 (SS-09); South Coal Pile (SD-20); Drainage Ditch near Landfill (SD-27)
Industrial - Warehouse	Base Filling Station (SS-06); Old Entomology Lab (SS-17); Oil Change Area (SS-21)
Military	Old Drum Storage Area (SS-12); North Coal Pile (SD-19); Lube Oil Drum Storage (SS-22)

Notes: IRP Site 25 includes all the open drainage ditches throughout the base and is not associated with any specific land use.  
IRP = Installation Restoration Program.

**4.3.2.4 Other Hazardous Substances.** Storage tanks, asbestos, pesticides, PCBs, medical/biohazardous waste, ordnance, and lead would be managed in the same manner as described for the Proposed Action. There would be minimal or no impacts associated with the implementation of this alternative.

**4.3.2.5 Cumulative Impacts.** There are no cumulative impacts associated with the reuse plans detailed under this alternative with respect to hazardous materials.



#### EXPLANATION

- |                              |                            |
|------------------------------|----------------------------|
| ① Airfield                   | ⑥ *Commercial              |
| ② Aviation Support           | ⑦ *Residential             |
| ③ Industrial - General       | ⑧ *Public/Recreation       |
| ③ Industrial - Warehousing   | ⑨ *Agriculture             |
| ④ *Institutional (Medical)   | ⑩ Vacant Land              |
| ⑤ *Institutional (Education) | ⑪ Military                 |
|                              | IRP Sites                  |
|                              | Rickenbacker ANGB Boundary |
|                              | * Not Applicable           |
- Scale  
0 5000  
Feet

#### Installation Restoration Program (IRP) Sites Aviation with Industrial Park Alternative Total Planning Area

**Figure 4.3-4**

**4.3.2.6 Mitigation Measures.** Mitigation measures for the Aviation with Industrial Park Alternative are identical to those for the Proposed Action (Section 4.3.1.13)

### **4.3.3 Aviation with Mixed Use Alternative.**

**4.3.3.1 Hazardous Materials Management.** The hazardous materials likely to be utilized for activities occupying the proposed land use zones are identified in Table 4.3-4. Hazardous materials use and management under the Aviation with Mixed Use Alternative essentially would be the same as that described for the Proposed Action and the Aviation with Industrial Park Alternative, although additional land uses would be involved.

**Table 4.3-4. Hazardous Material Usage by Land Use - Aviation with Mixed Use Alternative**

Land Use	Operation Process	Hazardous Materials
Airfield	Aircraft refueling; utilization of runways, taxiways, corporate and private aviation facilities, aircraft parking	Aviation fuels, glycols, heating oils
Aviation support	Operations associated with aircraft maintenance and manufacturing, air transportation-related industry and warehousing, fire station, other administrative services	Fuels, solvents, paints, POL, hydraulic fluids, degreasers, corrosives, heavy metals, reactives, thinners, paints, glycols, ignitables, heating oils, cyanides
Industrial	Activities associated with light industry, manufacturing, research and development, warehousing	Solvents, heavy metals, POL, corrosives, catalysts, aerosols, fuels, heating oils, ignitables, pesticides
Military	Operations associated with airfield, aviation support, warehousing and offices	Fuels, glycols, heating oils, solvents, paints, POL, corrosives, metals, pesticides
Institutional (medical)	Hospital/clinic, dental clinic, x-ray unit	Pharmaceuticals, chemotherapeutic drugs, radiological sources, heavy metals
Commercial	Activities associated with offices, warehousing, retail, service industries, restaurants	Fuels, solvents, corrosives, POL, ignitables, heating oils, pesticides
Residential	Utilization/maintenance of single-family and multi-family units, landscaping	Pesticides, fertilizers, fuels, oils, chlorine, household chemicals
Public facilities/recreation	Maintenance of existing recreational facilities including indoor and outdoor sports complex, swimming pools, other recreational facilities	Pesticides, fertilizers, chlorine, heating oils, paints, thinners, cleaners, solvents, aerosols, POL
Vacant	Activities associated with the maintenance of grounds and existing unused facilities	Paints, pesticides, heating oils, fertilizer

POL = Petroleum, oil, and lubricants.

Hazardous materials management under the Mixed Use Alternative would be the same as described for the Proposed Action and the Aviation with Industrial Park Alternative.

#### 4.3.3.2 Hazardous Waste Management.

Hazardous waste generation and management would be the same as described for the Proposed Action and the Aviation with Industrial Park Alternative, although additional land uses would be involved. Biohazardous waste generated with the reuse of the clinic would be subject to conformance with state regulations. The generation rates for waste products and disposal requirements would increase through developmental phases. These materials would not represent impacts on this reuse option.

#### 4.3.3.3 Installation Restoration Program Sites.

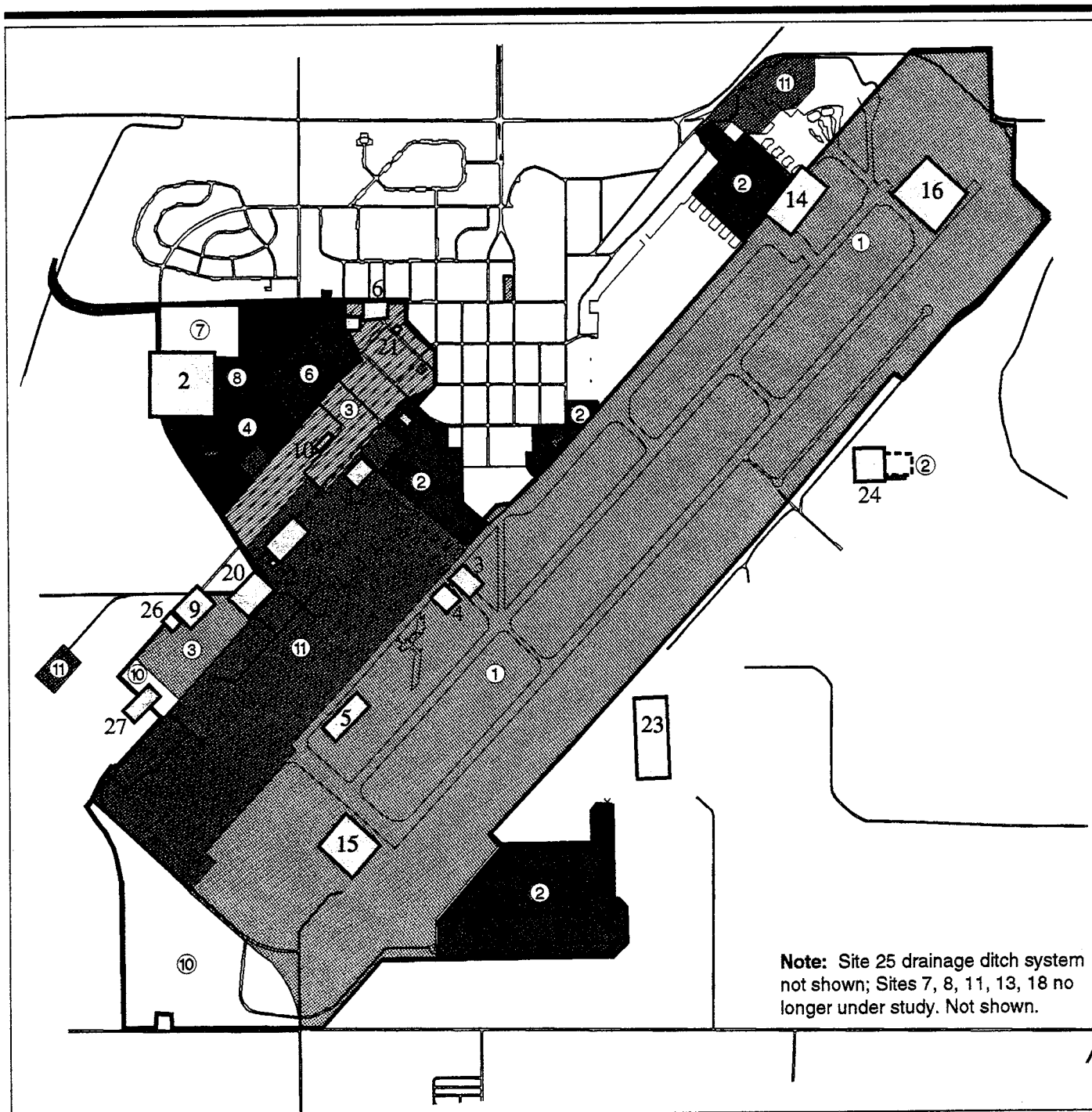
The IRP sites within each land use area for the Aviation with Mixed Use Alternative are discussed below, shown in Figure 4.3-5, and summarized in Table 4.3-5.

**Table 4.3-5. IRP Sites within Land Use Areas - Aviation with Mixed Use Alternative**

Proposed Land Use	IRP Sites
Airfield	JP-4 Pumphouse No. 4 (SS-03); JP-4 Pumphouse No. 5 (SS-04)
Aviation Support	Sewage Sludge Beds (WP-24)
Industrial - General	Salvage Yard Building 906 (SS-09); South Coal Pile (SD-20)
Industrial - Warehouse	Base Filling Station (SS-06); North Coal Pile (SD-19); Oil Change Area (SS-21); Lube Oil Drum Storage (SS-22)
Commercial	Old Entomology Lab (SS-17)
Residential/Public	JP-4 Bulk Storage Tank Farm (SS-02)
Vacant	Fire Training Area (FT-23); Drainage Ditch near Landfill (SD-27)

Notes: IRP Site 25 includes all the open drainage ditches throughout the base and is not associated with any specific land use.  
IRP = Installation Restoration Program.

**Airfield.** Remedial activities associated with JP-4 fuel pumping stations 4 and 5, IRP sites 3 and 4 respectively, are not anticipated to affect flight operations or runway upgrade and maintenance activities during any of the three planning phases for the alternative. Should excavation be required during remediation activities, safeguards commensurate with potential to risks to health and safety should be implemented.



#### EXPLANATION

- |                              |                            |
|------------------------------|----------------------------|
| ① Airfield                   | ⑥ Commercial               |
| ② Aviation Support           | ⑦ Residential              |
| ③ Industrial - General       | ⑧ Public/Recreation        |
| ③ Industrial - Warehousing   | ⑨ *Agriculture             |
| ④ Institutional (Medical)    | ⑩ Vacant Land              |
| ⑤ *Institutional (Education) | ⑪ Military                 |
|                              | IRP Sites                  |
|                              | Rickenbacker ANGB Boundary |

\* Not Applicable

#### Installation Restoration Program Sites Aviation With Mixed Use Alternative

**Figure 4.3-5**

**Aviation Support.** Proposed activities surrounding IRP Site 24 located southeasterly from runway 05R/23L are not expected to preclude development of aviation support facilities or affect proposed aircraft operations. A focused feasibility study is scheduled for site 24. Results of this study may provide information resulting in land use restrictions due to monitoring well locations and remediation activities.

**Industrial - General.** All or portions of two IRP sites are within this land use zone. Proposed construction and development during any phase of the alternative in these areas may be delayed by remediation and sampling activities. All of the sites are slated for further investigation. Sites 2 and 20 will have groundwater monitoring wells installed while site 9 may require some degree of excavation as part of a remediation plan.

**Industrial - Warehouse.** Focused feasibility studies and RIs related to sites 6, 19, 21, and 22 could delay reuse and development of property under this alternative.

**Commercial.** Any proposed development surrounding IRP site 17 should be unaffected during any development phase. Further study at site 17 could result in a decision document requiring no further action after verifying the absence of contaminants.

**Residential/Public.** All or portions of IRP site 2 are located within this proposed land use. IRP activities at this site could delay or preclude further development of high or medium density housing due to remediation scenarios and risk assessment close to the Bulk Fuel Storage Area, considering the contaminants involved.

**Vacant.** IRP activities will be completed on sites located in areas projected to be vacant under this alternative. Specifically sites 23 and 27. IRP activities at Site 25 will be included in the RI slated for Site 27.

**4.3.3.4 Other Hazardous Substances.** Storage tanks, asbestos, pesticides, PCBs, medical/biohazardous waste, and lead would be managed in the same manner as described for the Proposed Action. There would be minimal or no impacts associated with the implementation of this alternative.

**4.3.3.5 Cumulative Impacts.** There are no cumulative impacts associated with the reuse plans detailed in this alternative with respect to hazardous materials.

**4.3.3.6 Mitigation Measures.** Mitigation measures for this alternative are identical to those for the Proposed Action.

#### **4.3.4 No-Action Alternative**

The only hazardous waste issues associated with this alternative would concern the final phases of the IRP activities. Under the No-Action Alternative, the OL would manage all waste generated under the applicable regulations. Facility and ground maintenance would be the primary activities that would involve hazardous materials.

1 **4.3.4.1 Hazardous Materials Management.** Hazardous materials would be  
2 utilized in preventive and regular maintenance activities, grounds  
3 maintenance, and water and wastewater treatment. the materials used for  
4 these activities would include pesticides, fuels, paints, and corrosives. The  
5 OL would be responsible for hazardous materials handling training, as well  
6 as hazardous materials communication requirements of OSHA regulations.  
7 Quantities of hazardous materials would be similar to those used at  
8 realignment.

9 **4.3.4.2 Hazardous Waste Management.** With the exception of facilities  
10 utilized by OL personnel, all satellite accumulation points would be closed  
11 and the DRMO would dispose of all hazardous waste prior to realignment.  
12 the small amount of hazardous waste that would be generated under the  
13 No-Action Alternative may enable the OL to become an exempt,  
14 small-quantity generator. The OL must comply with all RCRA and state  
15 regulations.

16 **4.3.4.3 Installation Restoration Program Sites.** Ongoing sampling and  
17 remedial design activities would be continued by the individual IRP  
18 contractors. The OL would support the utility requirements for these  
19 contractors and provide security for the IRP areas.

20 **4.3.4.4 Storage Tanks.** USTs remaining at Rickenbacker ANGB would be  
21 managed by the OL. Cathodic protection and leak detection systems on the  
22 USTs would be the responsibility of the OL. Federal regulations require the  
23 realignment of USTs out of service for 1 year or longer.

24 The ASTs would be purged of fuel fumes to preclude fire hazards. The UFC  
25 may order the removal of tanks that are out of service. The OL would  
26 provide cathodic protection, repair, and general maintenance for the  
27 aboveground storage tanks and piping.

28 Oil/water separators in continuing service would be managed and  
29 maintained by the OL. Any oil/water separators no longer in service would  
30 have residual contents tested, pumped out, and properly disposed.

31 **4.3.4.5 Asbestos.** The impacts from the No-Action Alternative would be  
32 minimal. Vacated buildings would be secured to prevent contact with ACM if  
33 the No-Action Alternative were implemented. Management of ACM will be  
34 accomplished to ensure a safe site environment.

35 **4.3.4.6 Pesticides.** Under the No-Action Alternative, the grounds would be  
36 maintained in such a manner as to facilitate economic resumption of use.  
37 There should not be an appreciable increase in the use of pesticides from  
38 the realignment baseline. Application of pesticides would be conducted in  
39 accordance with FIFRA and state regulations to assure the proper and safe  
40 handling and application of all chemicals.

41 **4.3.4.7 Polychlorinated Biphenyls.** All federally regulated PCB  
42 equipment and PCB-contaminated equipment will be removed and properly  
43 disposed by the Ohio ANG prior to base realignment; therefore, these  
44 materials will not create any impacts.

1           **4.3.4.8 Radon.** Since all radon screening survey results were below U.S.  
2           EPA's recommended mitigation level of 4 pCi/l, there would be no impacts  
3           from implementation of the No-Action Alternative.

4           **4.3.4.9 Medical/Biohazardous Waste.** All existing materials will be  
5           removed prior to realignment; therefore, these materials would not create an  
6           impact under the No-Action Alternative.

7           **4.3.4.10 Ordnance.** There are no explosive ordnance disposal sites  
8           operated within the current boundaries of Rickenbacker ANGB. Therefore,  
9           there are no impacts associated with this alternative on any reuse scenario  
10          or planning phase.

11          **4.3.4.11 Lead.** Impacts under the No-Action Alternative would be minimal.  
12          Vacated buildings would be maintained to prevent exposure to lead-based  
13          paints.

14          **4.3.4.12 Mitigation Measures.** Under the No-Action Alternative,  
15          contingency plans developed to address spill response would be less  
16          extensive than those required for the Proposed Action or the other reuse  
17          alternatives. Implementation of such procedures could effectively mitigate  
18          any potential impacts associated with the No-Action Alternative.

#### 19          **4.3.5 Other Land Use Concepts.**

20          This section addresses transfers/conveyances within the framework of the  
21          IRP and waste typically associated with the proposed reuses.

22          Some of the proposals received regarding reuse options of Rickenbacker  
23          ANGB would result in reuse of existing facilities and no extensive future  
24          development. One reuse proposal identifies a need for renovation of  
25          Building 538, identified as having potential for both ACM and lead-based  
26          paint. Compliance with applicable federal, state and local regulations would  
27          be the responsibility of the owner/operator under this reuse scenario and  
28          renovation effort, including the disposal of renovation-generated wastes.

29          Implementation of these independent scenarios should result in a minimal  
30          generation of hazardous wastes. Owners/operators under these reuse  
31          proposals may qualify for conditionally exempt small quantity generator  
32          status as defined by Ohio EPA.

### 33    **4.4 NATURAL ENVIRONMENT**

#### 34          **4.4.1 Soils and Geology.**

35          The potential effects of the Proposed Action and reuse alternatives on the  
36          local soils and geology have been analyzed based on review of published  
37          literature.

38          **4.4.1.1. Proposed Action.** Under the Proposed Action, all ground  
39          designated for new construction has been previously disturbed. Therefore,  
40          effects of the Proposed Action on soils would be minimal. Gravel and other  
41          fill material necessary for construction would be derived from quarries



located outside the study area. Geologic resources within the ROI would not be affected by the Proposed Action.

In response to a letter of inquiry from the Air Force regarding the occurrence of prime farmland on Rickenbacker ANGB, the Soil Conservation Service responded with the following statements.

The vast majority of the base is within Franklin County, Ohio. The soils mapped on the base are Celina, Crosby, and Kokomo. Because of the extensive amount of surface that is covered by nonsoil material (roads, buildings, etc.) and disturbance of natural soils that occurs during construction operations in these areas, these mapping units are not considered prime farmland.

A small part of the base is within Pickaway County, Ohio. Because of the relatively minor extent of disturbed soil areas when compared with undisturbed areas of Celina, Crosby, and Kokomo soils in this part of Pickaway County, the areas that include disturbed soils were not separated from areas of undisturbed soils during the Pickaway County mapping project.

These statements imply that none of the base property within Franklin County is considered prime farmland, and that all of the base property within Pickaway County is considered as having the potential to be prime farmland pending a more detailed investigation. The Air Force has submitted Forms AD 1006 to the Soil Conservation Service offices in Franklin and Pickaway counties for final determinations on prime farmland at Rickenbacker ANGB (see Appendix M). The proposed new runway would be built on property to be acquired by the RPA within Pickaway County and potential impacts to prime farmlands would be addressed at the time of the property acquisition.

**Cumulative Impacts.** The impacts on soils and aggregate demand would be minimal and would not add significantly to the impacts from other construction in the area.

**Mitigation Measures.** Restoration of disturbed sites would be necessary to prevent erosion due to stormwater runoff and wind. Soil erosion control procedures, such as sediment basins, sediment fences, revegetation, diversion, or staked bales could be used at the construction and demolition sites. During dry periods, water sprays could be used to prevent the soils in the study area from being eroded by wind.

**4.4.1.2. Aviation with Industrial Park Alternative.** The Aviation with Industrial Park Alternative would involve construction only on previously disturbed ground. Therefore, impacts on soils would be minimal. Gravel and other fill material necessary for construction would be derived from quarries located outside the study area. Geologic resources within the ROI would not be affected by the alternative action. Cumulative impacts and mitigations would be as described for the Proposed Action.

As described for the Proposed Action, consultation with the Soil Conservation Service regarding prime farmland is currently ongoing.

1 **4.4.1.3. Aviation with Mixed Use Alternative.** Under the Aviation with  
2 Mixed Use Alternative, all ground designated for new construction has been  
3 previously disturbed. Therefore, impacts on soils would be minimal. Gravel  
4 and other fill material necessary for construction would be derived from  
5 quarries located outside the study area. Geologic resources within the ROI  
6 would not be affected by this alternative.

7 As described for the Proposed Action, consultation with the Soil  
8 Conservation Service regarding prime farmland is currently ongoing.

9 **4.4.1.4. No-Action Alternative.** The No-Action Alternative would involve  
10 minor ground disturbance of previously disturbed land over the next twenty  
11 years. Therefore, soils would be affected minimally. Geologic resources  
12 within the ROI would not be affected by the No-Action Alternative.  
13 Cumulative impacts and mitigations would be as described for the Proposed  
14 Action.

15 **4.4.1.5. Other Land Use Concepts.** The requests by state and federal  
16 agencies for use of land and facilities within the ROI do not include plans for  
17 soil-disturbing activities. Therefore, soils and geologic resources would not  
18 be impacted.

#### 19 **4.4.2 Water Resources**

20 The following section describes the potential impacts on water resources as  
21 a result of the Proposed Action and reuse alternatives. Where possible,  
22 potential impacts associated with the Proposed Action and reuse alternatives  
23 are discussed at the five-year, ten-year, and twenty- year planning phase.  
24 Generally, potential impacts to surface water quality would result from  
25 demolition and construction activities as well as from other facilities  
26 operations. The degree of impact would be related to the extent and type of  
27 activities at a particular location, to the present land use, and to the intended  
28 reuse. However, surface water resources are not utilized as a potable water  
29 source in the Rickenbacker ANGB area, so drinking water quality would not  
30 be affected by demolition and construction.

31 Groundwater demands under the Proposed Action and reuse alternatives  
32 generally fall within three land use categories: residential, commercial, and  
33 industrial. Consumption rates (i.e. level of demand) are dependent upon  
34 and commensurate with the level of activity proposed within these land use  
35 categories during each planning phase of the proposed action and reuse  
36 alternatives. Projected water consumption rates are identified for the  
37 Proposed Action and reuse alternatives in Section 4.2.4. Cumulative  
38 impacts to ground water quantity occur when regional demand exceeds the  
39 safe sustainable yield of the aquifer. Surface and groundwater issues and  
40 potential impacts are discussed in the following sections. Groundwater  
41 quality impacts related to hazardous waste contamination are addressed in  
42 Section 4.3, Hazardous Materials and Hazardous Waste Management.

##### 43 **4.4.2.1. Proposed Action.**

44 **Surface Water.** During the 5-year planning phase (Phase 1), the majority of  
45 demolition and construction activities and subsequent surface water impacts  
46 would occur in areas where the storm water drainage system discharges to

the east into Little Walnut Creek. Demolition and construction activities for this phase of the Proposed Action are outlined in Sections 2.2.1, 2.2.2, 2.2.4, and 2.2.5. Generally, surface water impacts resulting from these activities could include increased storm water runoff, sedimentation, erosion, and subsequent decline in surface water quality. Many of these impacts would be of short duration and would cease upon completion of the specific construction or demolition activity. For example, demolition of several Aviation Support and Industrial warehouses would increase fugitive dust and may increase soil erosion and sedimentation where building foundations are removed. Also, Industrial-Warehousing construction plans in the area south of existing SR 317 may result in short-term increases of surface water runoff and soil erosion. Other construction activities, such as the proposed taxiway exit from Runway 5L-23R, would have a long-term effect on storm water runoff due to the fact that the taxiway would create an impervious surface (approximately 700 feet by 75 feet) that could result in increased runoff to the adjacent storm water system and subsequently to Little Walnut Creek. Drainage patterns near the taxiway would be altered in localized areas to divert water away from the construction site and to drain the taxiway pavement. However, this minor rerouting and the incremental increases in discharge rates would be minimal compared to the overall volume of storm water runoff currently handled by the system and would not be expected to over burden it. Residual fuels and oils may build up adjacent to the taxiway as a result of projected flight operations, and could subsequently degrade surface water quality in Little Walnut Creek. To circumvent this, storm water outfall and treated wastewater would be monitored and sampled to assure compliance with the discharge limits pursuant to the NPDES permit maintained by the owner/operator of the reuse action. NPDES permit requirements are subject to the provisions of the NPDES Permit Application Regulations for Storm Water Discharges issued by the U.S. EPA as a final rule on November 16, 1990.

Potential surface water impacts to Big Walnut Creek under Phase 1 of the proposed action are relatively low because demolition and construction activities in areas draining to discharge points along Big Walnut Creek are minimal.

Potential surface water impacts would be less during the 10-year planning phase (Phase 2) of the Proposed Action because the total area affected by construction and demolition is small relative to Phase 1. Potential short-term impacts to the water quality in Big Walnut and Little Walnut Creeks may result from the demolition and construction activities planned under this phase of the proposed action. These activities are described in sections 2.2.1, 2.2.2, and 2.2.5. Generally, storm water runoff impacts such as increased sedimentation that would result from these actions would be the same as those described for Phase 1 activities. For example, the construction of air cargo facilities in the vicinity of the old alert facility would temporarily disturb surface-water flow patterns, potentially accelerate soil erosion, and increase sediment loads to Little Walnut Creek. Aviation support facilities construction in the area north of SR 317 and immediately east of the main entrance could potentially degrade surface water quality by also increasing sediment loads to Little Walnut Creek. These Phase 2 construction related surface water impacts would be of short duration and are not expected to impact the water quality of the Little Walnut Creek drainage system in the long-term.

The largest amount of acreage disturbance, including building demolition and new facilities construction, would occur during the 20-year planning phase (Phase 3) of the Proposed Action. These activities are focused in the southeast to eastern portion of the study area. This area is generally undeveloped along the southern and eastern boundaries with land uses characterized by parcels of open land and a golf course; both of these current uses allow precipitation to infiltrate soils. The addition of the new airfield (approximately 1100 feet long) and aviation support and warehouses described in Sections 2.2.1, 2.2.2 and 2.2.4 would not allow for infiltration over a large portion of this area and would result in similar, although slightly greater impacts, than those described for activities under Phases 1 and 2 of this action. Storm water discharge from the airfield and airfield support areas may contain fuels, oils, and other residual contaminants that could degrade surface water quality in Little Walnut Creek. To circumvent this, storm water outfall at oil water separators 3320 and 3325 and treated wastewater will be monitored and sampled; discharges will not exceed the discharge limits requirements pursuant to the NPDES permit maintained by the owner/operator of the reuse action. The ANG would be responsible for maintenance of the NPDES permit up until December 1994 when the existing permit expires. The ANG responsibility for maintaining the existing NPDES permit may cease prior to December 1994 upon approval of a joint-use, study-area wide permit which would be maintained by the reuse proponent. Furthermore, as a conservative measure, an additional oil water separator could be added to the storm water sewer system on the north end of the proposed runway to catch any runoff draining to the northeast into Little Walnut Creek.

**Groundwater.** Under the Proposed Action and reuse alternatives there would be no impacts to groundwater resources. Rickenbacker ANGB is currently connected to the City of Columbus water system with a consumption rate of approximately 0.343 million gallons per day. Consumption rates are not expected to change drastically under the Proposed Action or any of the reuse alternatives. The combined safe yield capacity of the city system is 165 million gallons per day with approximately 125 million gallons per day supplied to the City of Columbus for industrial, commercial and residential needs. With nearly 45 million gallons per day currently available, the projected consumption rates for Rickenbacker ANGB are not expected to impact the amount of available water and therefore, no mitigation measures are necessary.

**Cumulative Impacts.** No cumulative impacts to surface water or groundwater are expected for any phase of activities under the Proposed Action.

**Mitigation Measures.** To minimize potential impacts to surface water, construction designs should incorporate provisions to reduce storm water runoff. The following practices could be implemented to effectively reduce the impacts to surface water quality during and after construction or demolition:

- Create landscaped areas that are pervious to surface water
- Minimize areas of surface disturbance

- Control site runoff by surrounding areas of disturbance and soil stockpiles with runoff sediment barriers
- Incorporate storm water runoff controls such as sediment catchment basins, slope stability features (i.e. rip-rap placement), and soil stockpiling with wind erosion protection (i.e. covering of stockpiles) into construction and demolition plans
- Minimize time that disturbed areas are exposed to erosion
- Provide regular maintenance for oil/water separators in storm water sewer system
- Stagger timing of activities with each planning phase to minimize potential for compounding short-term, construction- or demolition-related impacts at any given time
- Provide regular street sweeping

#### 4.4.2.2. Aviation with Industrial Park Alternative.

**Surface Water.** Potential impacts to surface water resources for the 5- and 10-year planning phases of this alternative would be the same as those described for the respective planning phases of the Proposed Action (Refer to Section 4.4.2.1). The similarity in impacts during the 5-year and 10-year phases is a reflection of the similarity in land use planning for each action. However, impacts would be commensurate with the level of activities planned and therefore would be smaller in magnitude under this alternative. Surface water impacts would be significantly less than those associated with the Proposed Action during the 20-year planning phase, largely due to the absence of the proposed new runway under this alternative. For this alternative, industrial warehouse construction is designated for the southern end of the airfield with the majority of construction scheduled beyond the 20-year planning phase. Subsequently, temporary disturbance to surface water conditions during the 20-year planning phase may occur, but with minimal impact.

**Groundwater.** No impacts to groundwater resources are identified under this alternative during the 5-year, 10-year, and 20-year planning phase.

**Cumulative Impacts.** No cumulative impacts to surface water or groundwater are expected for any phase of activities under this alternative.

**Mitigation Measures.** Mitigation measures under this alternative are the same as those described for the Proposed Action.

#### 4.4.2.3. Aviation with Mixed Use Alternative.

**Surface Water.** Under the Mixed Use Alternative, impacts to surface water are less than under any other alternative, except the No-Action Alternative. Alternative Construction and demolition activities (described in Sections 2.3.2.4, 2.3.2.5, and 2.3.2.6) associated with industrial and commercial reuses proposed under this alternative would impact both Little Walnut and Big Walnut creeks. The amount of these activities is evenly distributed in

each of the 5-, 10-, and 20-year planning phases. Therefore, impacts to surface water would be relatively the same and of the same intensity during each phase of activity. Surface water impacts under this alternative could include temporary disturbance of surface-water flow patterns, potential acceleration of soil erosion, and increase in sediment loads to Little Walnut and Big Walnut creeks. Also, drainage patterns near these construction and demolition sites would be altered in localized areas to divert water away from the construction site and to drain soils around the new facilities. However, these surface water impacts would be of short duration and are not expected to impact the water quality of either drainage system in the long-term.

Residual oils and fuels may build up on runways and taxiways as a result of increased flight operations and could subsequently degrade surface water quality of Little Walnut and Big Walnut creeks. To circumvent this, storm water outfall will be monitored and sampled to assure compliance with the discharge limits in the NPDES permit maintained by the owner/operator of the reuse action.

Construction of residential housing (refer to Section 2.3.2.8) is planned for a undeveloped area on the western portion of the base. Construction would disturb surface conditions and could potentially accelerate soil erosion and temporally increase sediment loads to Big Walnut Creek. These potential impacts to surface water quality would be mitigated with the measures described in Section 4.4.2.1, Mitigation Measures.

**Groundwater.** No impacts on groundwater resources are identified under this alternative during the 5-, 10-, and 20-year planning phases.

**Cumulative Impacts.** No cumulative impacts to surface water or groundwater are expected for any phase of activities under this alternative.

**Mitigation Measures.** Mitigation measures under this alternative are the same as those described for the Proposed Action.

#### 4.4.2.4. No-Action Alternative.

**Surface Water.** Under the No-Action Alternative there would be no impacts to surface water quality. This results from the lack of construction, demolition, and other land development that could cause surface water quality degradation.

**Groundwater.** No impacts to groundwater resources occur as a result of the No-Action Alternative (refer to Section 4.4.2.1, Groundwater).

**Cumulative Impacts.** No cumulative impacts to surface water or groundwater are expected for any phase of activities under this alternative.

**Mitigation Measures.** Mitigation measures under this alternative are the same as those described for the Proposed Action.

#### 4.4.2.5. Other Land Use Concepts.

Land and facilities reuse has been requested from independent organizations and other individuals (refer to Section 2.3.4). The majority of these proposed reuse areas and facilities include dormitories, dining halls, Officer's Club, BX, and an outdoor track. None of these potential land and/or facility acquisitions and associated activities would result in impacts to water resources in and around the study area.

#### 4.4.3 Air Quality

Air quality impacts would occur during construction and operations associated with the Proposed Action and alternatives for the reuse of Rickenbacker ANGB. Intermittent construction-related impacts could result from fugitive dust (particulate matter) and construction equipment emissions. Operational impacts would occur from (1) mobile sources such as aircraft, aircraft operation support equipment, commercial transport vehicles, and personal vehicles; (2) point sources such as heating/power plants, generators, incinerators, and storage tanks; and (3) secondary emission sources associated with population increase, such as residential heating.

The methods selected to analyze impacts depend upon the type of emission source being examined. Air quality analytical methods are summarized here and presented in detail in Appendices E and I. Analysis of the construction phase consists of estimating the amount of uncontrolled fugitive dust emitted from disturbed areas and the combustion emissions associated with construction equipment. Analysis for emissions during the operation phase consists of quantifying the emissions associated with aircraft operations and reuse-related direct and secondary employees and their dependents. These emissions are then evaluated to determine how they would affect progress toward attainment or maintenance of the National Ambient Air Quality Standards (NAAQS).

Ambient effects to local air quality are analyzed by modeling pollutant concentrations at receptor locations likely to receive maximum air quality impacts. For aviation-related alternatives, maximum impact is associated with aircraft operations. A number of receptors are therefore typically selected at the downwind end of the runway for modeling purposes. Other non-aviation activities on base would not significantly contribute to the air quality impacts at those receptor locations.

The ambient effects of aircraft operations are analyzed by modeling with the EDMS (Segal, 1991 a,b,c). EDMS was developed jointly by the FAA and the U.S. Air Force specifically for the purpose of generating airport and air base emissions inventories, and for calculating the ambient concentrations caused by these emissions as they disperse downwind. The U.S. EPA added EDMS to its list of approved models in July 1993 (*Federal Register*, Vol. 58, No. 137, 338816). The model uses U.S. EPA and U.S. military aircraft emission factors and information on annual and peak hour landing and takeoff cycles to produce an emissions inventory of aircraft operations. Typical aircraft operations include takeoff, runway climb and approach, runway queuing, taxi-in and taxi-out, and idling at the gates.

Air quality modeling is presented for the Proposed Action and reuse alternatives through the year 2004 (ten years of analysis after realignment). The effects of the 1990 Clean Air Act Amendments (CAAA), such as electric and other low emission vehicle ownership percentages, cannot be accurately predicted very far into the 21st Century. The uncertainties of long range population and traffic projections, future Clean Air Act changes, and the complex interaction of meteorology with emission inventories make emission and pollution concentration projections beyond 10 years too speculative to be of value.

The following assumptions were made in estimating the emissions and effects of the Proposed Action and reuse alternatives:

- For construction, fugitive dust emissions were based on the acreage graded each year. Grading activity was assumed to occur 115 days per year. Combustion emissions from construction equipment were based on per-acre emission factors developed for a generic construction scenario. Construction equipment were assumed to be active 230 days per year. Four acre-days of disturbance are assumed per acre.
- EDMS was used to calculate annual aircraft emissions for the airport operations associate with the reuse alternatives.
- Future reuse-related long-term emissions from sources other than aircraft and construction activities were derived using per-capita emission factors. Future reuse-related emissions were estimated by multiplying per-capita emission factors by the total direct and indirect population related to reuse. (See Appendix I for a complete description of the methodologies used to forecast emissions.)

Although Franklin County has applied to the U.S. EPA for redesignation to attainment status for ozone (MORPC, 1993), it is currently designated as marginal nonattainment for ozone. Under the New Source Review provisions of the CAAA, any new or modified major reuse-related source emitting more than 100 tons per year of VOC or NO<sub>x</sub> in a marginal ozone nonattainment area must satisfy technology standards reflecting the lowest achievable emission rate (LAER) and must provide offsets representing emission reductions from other sources at a ratio of at least 1.1 to 1.0. Another major effect of the CAAA is the establishment of new permitting requirements for new source construction. The new requirements will necessitate permit approval from the Ohio EPA not only for projects which historically would have required a New Source Review permit, but also for other smaller sources that in the past would not have required a permit.

The New Source Review requirements governing the control of attainment pollutants (NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>) differ somewhat from the requirements for nonattainment pollutants described above. Except for CO, the process by which reuse-related emissions of attainment pollutants will be prevented from creating a nonattainment condition is called PSD. This process limits the allowable ambient impact of NO<sub>2</sub>, SO<sub>2</sub>, and PM<sub>10</sub> emissions from new or modified major stationary sources to specific increments. These increments are designed to prevent new or modified sources from causing significant degradation of an area's air quality. For PSD purposes, major stationary



sources are generally defined as those sources which emit more than 100 tons per year of an attainment pollutant. Ambient impacts from new or modified air pollution sources are generally determined through air quality modeling. Although the PSD process provides adequate means for assessing and regulating impacts from stationary sources of air pollution, this process does not provide a mechanism for dealing with nonstationary sources such as motor vehicles and aircraft.

Additionally, as described in Section 3.4.3, Air Quality, by the year 2000 most medium- and large-sized sources of HAPs generated by potential reuse at Rickenbacker ANGB would be required by the CAAA to follow U.S. EPA regulations that will control HAPs emissions. Because details of the specific types of industrial activities to be conducted under the reuse proposals are unknown, it is not possible to develop an inventory of HAP emissions for this analysis.

The CAA also provides that a Federal agency cannot support any activity that will not conform to the U.S. EPA-approved SIP. Congress explained in the 1990 CAAA that conformity to the SIP means conforming to the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. The CAAA requires specific annual reductions of both VOC and NO<sub>x</sub> emissions to attain the Federal ozone standard by the mandated 1993 attainment date. However, the reduction requirements for NO<sub>x</sub> do not apply if U.S. EPA determines, during review of the proposed SIP revision, that additional reductions of NO<sub>x</sub> would not contribute to attainment. Franklin County has demonstrated in its ozone attainment status redesignation request that VOC emission reductions that will be realized due to planned vehicles emission controls and federal restrictions on gasoline volatility should be sufficient to maintain ozone attainment (MORPC, 1993). Nonetheless, the proposed contingency would be to implement a Vehicle Inspection and Maintenance Program (I/M). The I/M program would further reduce both VOC and NO<sub>x</sub> emissions.

The CAAA required U.S. EPA to promulgate the criteria for determining conformity. U.S. EPA issued conformity rules for transportation-related projects in the Federal Register on January 11, 1993. Rules for determining conformity of general federal actions were finalized in the November 30, 1993 Federal Register.

Congress did not intend the conformity requirement to result in land use control or planning decisions by the Air Force regarding base closure or realignment properties to be disposed of. The U.S. EPA recognized this congressional intent and exempted such property lease or transfer actions from conformity determination requirements.

#### **4.4.3.1. Proposed Action.**

**Construction.** Fugitive dust would be generated during the construction in airfield, aviation support, military, and industrial land use areas proposed as part of this alternative. These emissions would be greatest during site clearing and grading activities. Uncontrolled fugitive dust (particulate matter) emissions from ground-disturbing activities are estimated to be emitted at a rate of 1.2 tons per acre per month, or 110 pounds per acre per

working day (U.S. EPA, 1985). The PM<sub>10</sub> fraction of the total fugitive dust emissions is assumed to be 50 percent, or 55 pounds per acre per working day.

Construction activities would disturb a total of 102 acres in the first ten years of reuse (1994-2004), with an average disturbance of 0.36 acres per day from 1994 to 1999 and 0.35 acres per day from 1999 to 2004. The amount of PM<sub>10</sub> generated would be 19.9 pounds (0.010 ton) per day from 1994 to 1999 and 19.1 pounds (0.010 ton) per day from 1999 to 2004. Based on the assumption that 115 days per year are used for site preparation, total fugitive PM<sub>10</sub> emissions from construction activity would be 1.15 tons and 1.10 tons per year for the same two time periods, respectively. The impact of these PM<sub>10</sub> emissions would cause elevated short-term concentrations at receptors located close to the construction areas. However, the elevated concentrations would be temporary and would fall off rapidly with distance from the site.

Combustive emissions from construction equipment associated with the new development activities are calculated based on average emission factors and the amount of land to be developed per time interval. For each acre of land developed, 3,820 lbs of CO, 1,095 lbs of NO<sub>x</sub>, 85 lbs of PM<sub>10</sub>, 290 lbs of VOC, and 100 lbs of SO<sub>x</sub> would be emitted from construction equipment. The total combustive emissions due to construction would be 19.90 tons per year of CO, 5.71 tons per year of NO<sub>x</sub>, 0.44 ton per year of PM<sub>10</sub>, 1.51 tons per year of VOC, and 0.52 ton per year of SO<sub>x</sub> during the time period from 1994 to 1999. Based on the assumption that construction equipment is active 230 days per year, the daily combustive emissions in the period would be 0.087, 0.025, 0.002, 0.007, and 0.002 ton per day for the same pollutants, respectively. Emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, VOC, and SO<sub>x</sub> in the period from 1999 to 2004 would be 19.10 tons per year (0.083 tons per day), 5.48 tons per year (0.024 tons per day), 0.43 tons per year (0.002 tons per day), 1.45 tons per year (0.006 tons per day), and 0.50 tons per year (0.002 tons per day), respectively.

**Operations.** A summary of construction and operation emissions for the Proposed Action is presented in Table 4.4-1 for the years 1999 and 2004. Fugitive dust and construction combustive emissions were calculated as described above. Aircraft operation emissions were calculated using the EDMS model. Estimates for all other categories of emissions were calculated using the methodologies described in Appendix I.

Potential impacts to air quality as a result of operational emissions from the Proposed Action were evaluated in terms of two spatial scales: regional and local. The regional-scale analysis considered the potential for total reuse-related emissions to affect the achievement and maintenance of attainment of the federal ozone standard (VOC and NO<sub>x</sub> emissions), or cause large increases in the regional pollutant inventories (NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub> emissions). The local-scale analysis evaluated the potential for aircraft emissions to exceed the NAAQS in the immediate vicinity of the base. If one of these conditions were to occur, the Proposed Action would have an adverse impact on air quality.

**Table 4.4-1. Emissions Associated with the Proposed Action  
(tons/day)**

Pollutant	Franklin County <sup>(a)</sup> 1990	Base-Related Emissions <sup>(b)</sup>		Reuse Related Emissions <sup>(b,c)</sup>	
		Pre- Realignment 1991	Realignment 1994	1999	2004
VOC	162.3	4.14	3.09	3.49	3.83
NO <sub>x</sub>	134.5	2.35	1.84	3.15	3.81
CO	535.1	8.60	7.01	9.16	11.82
SO <sub>2</sub>	26.3	0.34	0.24	0.34	0.41
PM <sub>10</sub>	63.7	0.72	0.43	0.57	0.66

Notes: <sup>(a)</sup> Emissions are from Ohio EPA.

<sup>(b)</sup> Emissions are total emissions from both direct and indirect sources, as described in Appendix I.

<sup>(c)</sup> Future year emissions include both construction and operation emissions.

**Regional Scale.** Emissions of ozone precursors from the Proposed Action would contribute to regional ozone levels. However, it is not expected that the Proposed Action would delay regional progress toward attainment of the ozone standard.

**Ozone Precursors.** Table 4.4-1 provides a comparison of emission estimates for Franklin County in 1990, the total pre-realignment and realignment emissions associated with Rickenbacker ANGB (base-related emissions), and the reuse-related emissions. Base-related emissions include the direct emissions at Rickenbacker ANGB as well as the indirect emissions associated with the base under pre-realignment and realignment conditions. Similarly, the reuse-related emissions include both direct and indirect emissions associated with the Proposed Action. Table 4.4-1 shows that, although the total reuse-related emissions of VOC would increase from realignment conditions by 0.74 tons/day in 2004, the emissions would remain below pre-realignment levels throughout the 10-year analysis period. By 2004, the total reuse-related VOC emissions would be only 93 percent of the total pre-realignment VOC emissions associated with Rickenbacker ANGB. By 2004, reuse-related emissions of NO<sub>x</sub> would increase by 1.97 tons/day over realignment conditions. Total reuse-related emissions of NO<sub>x</sub> in the year 2004 would be approximately 162 percent of the pre-realignment level of NO<sub>x</sub> emissions associated with Rickenbacker ANGB.

The objective of the CAAA is to bring the region into attainment through the reduction of VOC and NO<sub>x</sub> emissions. Because of the reduced level of VOC emissions associated with the Proposed Action compared to pre-realignment conditions (primarily aircraft operation emission reductions) VOC emissions would not interfere with the attainment of the ozone standard. Increased NO<sub>x</sub> emissions could potentially interfere with the attainment of the ozone standard. However, the Franklin County ozone attainment status redesignation request has relied on VOC emission reductions as being sufficient to maintain attainment. Small ton per day increases of NO<sub>x</sub> emissions therefore are not expected to interfere with attainment. However, should VOC emission reductions alone prove to be insufficient, an I/M program would be implemented to further reduce both VOC and NO<sub>x</sub> (MORPC, 1993).

1 **NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>.** Table 4.4-1 provides a means to compare  
2 emissions related to the Proposed Action to 1990 Franklin County emissions  
3 and base-related pre-realignment and realignment emission levels. All NO<sub>x</sub>  
4 emissions in Table 4.4-1 are assumed to convert to NO<sub>2</sub> emissions on a  
5 regional basis.

6 Direct and indirect reuse-related emissions of NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>  
7 associated with the Proposed Action would increase by 1.97 tons/day, 4.81  
8 tons/day, 0.17 tons/day, and 0.23 tons/day, respectively, over realignment  
9 conditions. In 2004, total emissions of NO<sub>2</sub>, CO, SO<sub>2</sub> and PM<sub>10</sub> would  
10 represent 162, 137, 121, and 92 percent, respectively, of the 1991 pre-  
11 realignment emissions related to Rickenbacker ANGB. Measured ambient  
12 concentrations and estimated background values for CO, SO<sub>2</sub>, and PM<sub>10</sub> (as  
13 shown previously in Tables 3.4-6 and 3.4-7) indicate that good air quality  
14 conditions for these pollutants exist in the area of Rickenbacker ANGB.  
15 Likewise, good air quality conditions exist for NO<sub>2</sub>. NO<sub>2</sub> has never been a  
16 problem in the area and is not monitored. Air quality impacts from the  
17 increased reuse-related emissions of these primary pollutants are therefore  
18 not expected to be sufficient to affect maintenance of the current attainment  
19 status of the respective pollutant standards.

20 **Local Scale.** A summary of the EDMS analysis for the Proposed Action is  
21 presented in Table 4.4-2. The modeling results show that during peak hours  
22 of airport operation, the maximum pollutant concentrations would occur at a  
23 receptor located along the centerline of the runway at the base boundary  
24 (approximately 940 feet from the NE end of runway 05R/23L), assuming a  
25 wind direction parallel to the runway. The primary contributing factor at this  
26 location would be aircraft exhaust emitted during takeoffs. The modeling  
27 results indicate that the maximum concentrations when added to  
28 representative background concentrations would not exceed the NAAQS in  
29 the area surrounding the airport. Emissions from airport activities under the  
30 Proposed Action would, therefore, have no adverse impact on the local air  
31 quality.

32 **Mitigation Measures.** Air quality impacts during construction would occur  
33 from fugitive dust emissions from ground-disturbing activities, and from  
34 combustion emissions emitted by construction equipment. Application of  
35 water during ground-disturbing activities is estimated to reduce fugitive dust  
36 emissions by at least 50 percent (U.S. EPA, 1985). Other measures such as  
37 reducing vehicle speeds and paving dirt roads could reduce dust emissions  
38 as well. Combustion emission impacts could be mitigated by efficient  
39 scheduling of equipment use, reducing the number of units operating  
40 simultaneously, and performing regular vehicle engine maintenance.  
41 Implementation of these measures would substantially reduce air quality  
42 impacts from construction activities associated with the Proposed Action.

43 The modeling results in Table 4.4-2 show that localized project impacts  
44 would not be adverse. Mitigation of these impacts would, therefore, not be  
45 required. Additional mitigation of regional ozone impacts would not be  
46 required, since the Proposed Action VOC emissions in future years would be  
47 lower than pre-realignment levels.

**Table 4.4-2. Air Quality Modeling Results for Airport Operations  
Associated with the Proposed Action ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	Averaging Time	Reuse-Related Impact <sup>(a)</sup>			Background Conc. <sup>(b)</sup>	NAAQS <sup>(c)</sup>
		Pre- Realignment 1991	1999	2004		
PM <sub>10</sub>	Annual	11	8	9	25	50
	24-hour	44	33	36	81	150
SO <sub>2</sub>	Annual	9	15	18	17	80
	24-hour	36	60	74	93	365
CO	3-hour	91	149	184	233	1,300
	8-hour	973	1,106	1,288	7,705	10,000
	1-hour	1,390	1,580	1,840	9,975	40,000

Notes: <sup>(a)</sup> Projected pollutant concentrations determined from EDMS modeling results.

<sup>(b)</sup> Background concentrations provided by Ohio EPA (personal communication, Engler 1994).

<sup>(c)</sup> Impacts are determined by comparing the aggregate of the reuse-related impact and background concentration to the NAAQS.

#### 4.4.3.2. Aviation with Industrial Park Alternative.

**Construction.** Construction impacts from the Aviation with Industrial Park Alternative would occur due to the generation of fugitive dust during development of the airfield, aviation support, military, and industrial land use areas proposed as part of this alternative. It is estimated that a total of 150 acres would be disturbed by construction in the first ten years of reuse (1994-2004), with an average disturbance of 0.32 acres per day from 1994 to 1999 and 0.73 acres per day from 1999 to 2004. These levels of disturbance would release an estimated 17.4 pounds (0.009 ton) per day and 40.1 pounds (0.020 ton) per day during the two periods, respectively. The impact of these emissions would cause elevated concentrations of particulates at receptors close to the construction areas. The concentrations would decrease rapidly with distance from the site.

Combustive emissions from construction equipment associated with the Aviation with Industrial Park Alternative were calculated based on the same average emission factors and assumptions as previously described for the Proposed Action. The total combustive emissions due to construction were determined to be 17.42 tons per year (0.076 ton per day) of CO, 4.99 tons per year (0.022 ton per day) of NO<sub>x</sub>, 0.39 ton per year (0.002 ton per day) of PM<sub>10</sub>, 1.32 tons per year (0.006 ton per day) of VOC, and 0.46 ton per year (0.002 ton per day) of SO<sub>x</sub> during the time period from 1994 to 1999. Emissions from 1999 to 2004 would be 40.03 tons per year (0.174 ton per day) of CO, 11.48 tons per year (0.050 ton per day) of NO<sub>x</sub>, 0.89 ton per year (0.004 ton per day) of PM<sub>10</sub>, 3.04 tons per year (0.013 ton per day) of VOC, and 1.05 ton per year (0.005 ton per day) of SO<sub>x</sub>.

**Operation.** Table 4.4-3 summarizes the results of the construction and operation emission calculations associated with the Aviation with Industrial Park Alternative for the years 1999 and 2004. Fugitive dust and construction combustive emissions were calculated as described above. Aircraft operation emissions were calculated using the EDMS model.

Estimates for all other categories of emissions were calculated using the forecasting methodologies as described in Appendix I.

**Regional Scale.** The Aviation with Industrial Park Alternative would generate emissions of ozone precursors, and would, therefore, impact regional ozone levels. However, it is not expected that the Aviation with Industrial Park Alternative would interfere with attainment or maintenance of the ozone standard.

**Ozone Precursors.** Table 4.4-3 shows that total reuse-related emissions of VOC in the year 2004 would increase by 1.65 tons/day over realignment conditions. By 2004, the total reuse-related VOC emissions would be only 114 percent of the total pre-realignment VOC emissions associated with Rickenbacker ANGB. Reuse-related NO<sub>x</sub> emissions in the year 2004 would increase by 2.87 tons/day over realignment levels and would be approximately 200 percent of the base-related pre-realignment levels.

**Table 4.4-3. Emissions Associated with the Aviation with Industrial Park Alternative (tons/day)**

Pollutant	Franklin County <sup>(a)</sup>	Base-Related Emissions <sup>(b)</sup>		Reuse Related Emissions <sup>(b,c)</sup>	
	1990	Pre- Realignm ent 1991	Realignm ent 1994	1999	2004
VOC	162.3	4.14	3.09	3.48	4.74
NO <sub>x</sub>	134.5	2.35	1.84	3.13	4.71
CO	535.1	8.60	7.01	9.08	15.37
SO <sub>2</sub>	26.3	0.34	0.24	0.34	0.58
PM <sub>10</sub>	63.7	0.72	0.43	0.56	1.09

Notes: <sup>(a)</sup> Emissions are from Ohio EPA.

<sup>(b)</sup> Emissions are total emissions from both direct and indirect sources, as described in Appendix I.

<sup>(c)</sup> Future year emissions include both construction and operation emissions.

**NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>.** Total reuse-related emissions of other criteria pollutants shown in Table 4.4-3 would increase from realignment levels (all NO<sub>x</sub> is assumed to convert to NO<sub>2</sub> on a regional basis). Total reuse-related emissions of SO<sub>2</sub> and PM<sub>10</sub> would be less than total pre-realignment emission levels in the year 1999. By the year 2004 the reuse-related emissions would increase to above pre-realignment levels. However, given the good air quality conditions in the area around Rickenbacker ANGB (refer to Tables 3.4-6 and 3.4-7 in Section 3.4.3), the amounts of increase are expected to be insufficient to change the present attainment status for NO<sub>2</sub>, CO, SO<sub>2</sub>, or PM<sub>10</sub>. Air quality impacts from these primary pollutants are expected to be minor under the Aviation with Industrial Park Alternative.

**Local Scale.** Aviation operations for the Aviation with Industrial Park Alternative are the same as for the Proposed Action. A summary of the

EDMS analysis for the Proposed Action and a description of the analysis results was presented in Section 4.4.3.1. As was the case for the Proposed Action, emissions from airport activities under the Aviation with Industrial Park Alternative would have no adverse impact on the local air quality.

**Mitigation Measures.** The construction-related mitigation measures described under the Proposed Action could be used to substantially reduce air quality impacts from construction activities associated with this alternative.

#### 4.4.3.3. Aviation with Mixed Use Alternative.

**Construction.** Construction impacts from the Aviation with Mixed Use Alternative would occur due to the generation of fugitive dust during development of the airfield, aviation support, military, industrial, commercial, institutional, residential, and public recreation land use areas proposed as part of this alternative. It is estimated that a total of 60 acres would be disturbed by construction in the first ten years of reuse (1994-2004), with an average disturbance of 0.22 acres per day from 1994 to 1999 and 0.19 acres per day from 1999 to 2004. These levels of disturbance would release an estimated 12.2 pounds (0.006 ton) per day and 10.6 pounds (0.005 ton) per day during the two periods, respectively. The impact of these emissions would cause elevated concentrations of particulates at receptors close to the construction areas. The concentrations would decrease rapidly with distance from the site.

Combustive emissions from construction equipment associated with the Aviation with Mixed Use Alternative were calculated based on the same average emission factors and assumptions as previously described for the Proposed Action. The total combustive emissions due to construction were determined to be 12.22 tons per year (0.053 ton per day) of CO, 3.50 tons per year (0.015 ton per day) of NO<sub>x</sub>, 0.27 ton per year (0.001 ton per day) of PM<sub>10</sub>, 0.93 tons per year (0.004 ton per day) of VOC, and 0.32 ton per year (0.001 ton per day) of SO<sub>x</sub> during the time period from 1994 to 1999. Emissions from 1999 to 2004 would be 10.58 tons per year (0.046 ton per day) of CO, 3.03 tons per year (0.013 ton per day) of NO<sub>x</sub>, 0.24 ton per year (0.001 ton per day) of PM<sub>10</sub>, 0.80 tons per year (0.003 ton per day) of VOC, and 0.28 ton per year (0.001 ton per day) of SO<sub>x</sub>.

**Operation.** Table 4.4-4 summarizes the results of the construction and operation emission calculations associated with the Aviation with Mixed Use Alternative for the years 1999 and 2004. Fugitive dust and construction combustive emissions were calculated as described above. Aircraft operation emissions were calculated using the EDMS model. Estimates for all other categories of emissions were calculated using the forecasting methodologies as described in Appendix I.

**Regional Scale.** The Aviation with Mixed Use Alternative would generate emissions of ozone precursors, and would, therefore, impact regional ozone levels. However, it is not expected that the Aviation with Mixed Use Alternative would interfere with attainment or maintenance of the ozone standard.

**Ozone Precursors.** Table 4.4-4 shows that total reuse-related emissions of VOC in the year 2004 would increase by 0.33 tons/day over realignment conditions, but would remain below pre-realignment levels throughout the 10-year analysis period. By 2004, the total reuse-related VOC emissions would be only 83 percent of the total pre-realignment VOC emissions associated with Rickenbacker ANGB. Reuse-related NO<sub>x</sub> emissions in the year 2004 would increase by 0.61 tons/day over realignment levels and would be approximately 104 percent of the base-related pre-realignment levels. Because VOC emissions would be reduced from pre-realignment conditions, the Aviation with Mixed Use Alternative would not interfere with the attainment or maintenance of the ozone standard.

**Table 4.4-4. Emissions Associated with the Aviation with Mixed Use Alternative (tons/day)**

Pollutant	Franklin County <sup>(a)</sup>	Base-Related Emissions <sup>(b)</sup>		Reuse Related Emissions <sup>(b,c)</sup>	
	1990	Pre-Realignment 1991	Realignment 1994	1999	2004
VOC	162.3	4.14	3.09	3.32	3.42
NO <sub>x</sub>	134.5	2.35	1.84	2.20	2.45
CO	535.1	8.60	7.01	8.23	9.00
SO <sub>2</sub>	26.3	0.34	0.24	0.29	0.33
PM <sub>10</sub>	63.7	0.72	0.43	0.56	0.64

Notes: <sup>(a)</sup> Emissions are from Ohio EPA.

<sup>(b)</sup> Emissions are total emissions from both direct and indirect sources, as described in Appendix I.

<sup>(c)</sup> Future year emissions include both construction and operation emissions.

**NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>.** Total reuse-related emissions of other criteria pollutants shown in Table 4.4-4 would increase from realignment levels (all NO<sub>x</sub> is assumed to convert to NO<sub>2</sub> on a regional basis). Total reuse-related emissions would be less than total pre-realignment emission levels for each pollutant in the year 1999. By the year 2004 the reuse-related emissions of CO would increase to above pre-realignment levels. However, given the present good CO air quality conditions in the Rickenbacker ANGB area, the amount of CO increase would be insufficient to cause a nonattainment condition. Emissions of NO<sub>2</sub>, SO<sub>2</sub>, and PM<sub>10</sub> in 2004 would be less than pre-realignment conditions in 1991. Air quality impacts from these primary pollutants are expected to be minor under the Aviation with Mixed Use Alternative.

**Local Scale.** A summary of the EDMS analysis for the Aviation with Mixed Use Alternative is presented in Table 4.4-5. The modeling results show that during peak hours of airport operation, the maximum pollutant concentrations would occur at a receptor located along the centerline of the runway at the base boundary (approximately 940 feet from the NE end of runway 05R/23L), assuming a wind direction parallel to the runway. The



primary contributing factor at this location would be aircraft exhaust emitted during takeoffs. The modeling results indicate that the maximum concentrations when added to representative background concentrations would not exceed the NAAQS in the area surrounding the airport. Emissions from airport activities under the Aviation with Mixed Use Alternative would, therefore, have no adverse impact on the local air quality.

**Mitigation Measures.** The construction-related mitigation measures described under the Proposed Action could be used to substantially reduce air quality impacts from construction activities associated with this alternative.

**Table 4.4-5. Air Quality Modeling Results for Airport Operations Associated with the Aviation with Mixed Use Alternative ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	Averaging Time	Reuse-Related Impact <sup>(a)</sup>					NAAQS <sup>(c)</sup>
		Pre-Realignment 1991	1999	2004	Background Conc. <sup>(b)</sup>		
PM <sub>10</sub>	Annual	11	7	7	25		50
	24-hour	44	27	26	81		150
SO <sub>2</sub>	Annual	9	8	8	17		80
	24-hour	36	32	34	93		365
	3-hour	91	81	84	233		1,300
CO	8-hour	973	721	728	7,705		10,000
	1-hour	1,390	1,030	1,040	9,975		40,000

Notes: <sup>(a)</sup> Projected pollutant concentrations determined from EDMS modeling results.

<sup>(b)</sup> Background concentrations provided by Ohio EPA (personal communication, Engler 1994).

<sup>(c)</sup> Impacts are determined by comparing the aggregate of the reuse-related impact and background concentration to the NAAQS.

#### 4.4.3.4. No-Action Alternative.

**Construction.** Construction impacts from the No-Action Alternative would occur due to the generation of fugitive dust during development of the airfield, aviation support, military, and industrial land use areas proposed as part of this alternative. It is estimated that a total of 37 acres would be disturbed by construction in the first ten years of reuse (1994-2004), with an average disturbance of 0.16 acres per day from 1994 to 1999 and 0.10 acres per day from 1999 to 2004. These levels of disturbance would release an estimated 8.8 pounds (0.004 ton) per day and 5.2 pounds (0.003 ton) per day during the two periods, respectively. The impact of these emissions would cause elevated concentrations of particulates at receptors close to the construction areas. The concentrations would decrease rapidly with distance from the site.

Combustive emissions from construction equipment associated with the No-Action Alternative were calculated based on the same average emission factors and assumptions as previously described for the Proposed Action.

The total combustive emissions due to construction were determined to be 8.75 tons per year (0.038 ton per day) of CO, 2.51 tons per year (0.011 ton per day) of NO<sub>x</sub>, 0.20 ton per year (0.001 ton per day) of PM<sub>10</sub>, 0.66 tons per year (0.003 ton per day) of VOC, and 0.23 ton per year (0.001 ton per day) of SO<sub>x</sub> during the time period from 1994 to 1999. Emissions from 1999 to 2004 would be 5.20 tons per year (0.023 ton per day) of CO, 1.49 tons per year (0.006 ton per day) of NO<sub>x</sub>, 0.12 ton per year (0.001 ton per day) of PM<sub>10</sub>, 0.39 tons per year (0.002 ton per day) of VOC, and 0.14 ton per year (0.001 ton per day) of SO<sub>x</sub>.

**Operation.** Table 4.4-6 summarizes the results of the construction and operation emission calculations associated with the No-Action Alternative for the years 1999 and 2004. Fugitive dust and construction combustive emissions were calculated as described above. Aircraft operation emissions were calculated using the EDMS model. Estimates for all other categories of emissions were calculated using the forecasting methodologies as described in Appendix I.

**Table 4.4-6. Emissions Associated with the No-Action Alternative (tons/day)**

Pollutant	Franklin County <sup>(a)</sup>	Base-Related Emissions <sup>(b)</sup>		Reuse Related Emissions <sup>(b,c)</sup>	
	1990	Pre- Realignment 1991	Realignment 1994	1999	2004
VOC	162.3	4.14	3.09	3.01	2.96
NO <sub>x</sub>	134.5	2.35	1.84	1.92	1.99
CO	531.5	8.60	7.01	7.12	7.21
SO <sub>2</sub>	26.3	0.34	0.24	0.24	0.24
PM <sub>10</sub>	63.7	0.72	0.43	0.43	0.43

Notes: <sup>(a)</sup> Emissions are from Ohio EPA.

<sup>(b)</sup> Emissions are total emissions from both direct and indirect sources, as described in Appendix I.

<sup>(c)</sup> Future year emissions include both construction and operation emissions.

**Regional Scale.** The No-Action Alternative would generate emissions of ozone precursors, and would, therefore, impact regional ozone levels. However, it is not expected that the No-Action Alternative would interfere with attainment or maintenance of the ozone standard.

**Ozone Precursors.** Table 4.4-6 shows that total reuse-related emissions of VOC would be less than realignment conditions throughout the 10-year analysis period. By 2004, the total reuse-related VOC emissions would be only 71 percent of the total pre-realignment VOC emissions associated with Rickenbacker ANGB. Reuse-related NO<sub>x</sub> emissions in the year 2004 would increase by 0.15 tons/day over realignment levels and would be approximately 85 percent of the base-related pre-realignment levels. Because VOC and NO<sub>x</sub> emissions would be reduced from pre-realignment

conditions, the No-Action Alternative would not interfere with the attainment or maintenance of the ozone standard.

**NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>.** Total reuse-related emissions of other criteria pollutants shown in Table 4.4-6 would increase from realignment levels (all NO<sub>x</sub> is assumed to convert to NO<sub>2</sub> on a regional basis). Total reuse-related emissions would be less than total pre-realignment emission levels for each pollutant throughout the 10-year period of analysis. Air quality impacts from these primary pollutants would be minor under the No-Action Alternative.

**Local Scale.** Aircraft operations for the No-Action Alternative are the same as for the Aviation with Mixed Use Alternative. A summary of the EDMS analysis for the Aviation with Mixed Use Alternative and a description of the analysis results was presented in Section 4.4.3.3. As was the case for the Aviation with Mixed Use Alternative, emissions from airport activities under the No-Action Alternative would have no adverse impact on the local air quality.

**Mitigation Measures.** The construction-related mitigation measures described under the Proposed Action could be used to substantially reduce air quality impacts from construction activities associated with this alternative.

**4.4.3.5. Other Land Use Concepts.** These proposals would generate emissions associated with space heating, water heating, and cooking, as well as mobile source emissions. Implementation of these land use concepts in conjunction with any alternative is not expected to significantly increase total emissions beyond pre-realignment emissions levels associated with Rickenbacker ANGB. Impacts and mitigations would be similar to those described under each alternative.

#### **4.4.4 Noise**

Environmental impact analysis related to noise includes the potential effects on the local human and animal populations. This analysis estimates the extent and magnitude of noise levels generated by the Proposed Action and alternatives, using the predictive models discussed below. The baseline noise conditions and predicted noise levels are then assessed with respect to potential annoyance, speech interference, sleep disturbance, hearing loss, health, and land-use impacts. The metrics used to evaluate noise are Day-Night Sound Level (DNL) and Equivalent Sound Level (L<sub>eq</sub>), which are supplemented occasionally by Sound Exposure Level (SEL) and the A-weighted maximum sound level (L<sub>max</sub>). See Appendix H for an expanded discussion of these metrics.

Methods used to quantify the effects of noise such as annoyance, speech interference, sleep disturbance, health, and hearing loss have undergone extensive scientific development during the past several decades. The most reliable measures at present are noise-induced hearing loss and annoyance. Extra-auditory effects (those not directly related to hearing capability) are also important, although they are not as well understood. The current scientific consensus is that "evidence from available research reports is suggestive, but it does not provide definitive answers to the question of health effects, other than to the auditory system, of long-term exposure to

noise" (National Academy of Sciences, 1981). The effects of noise are summarized in this section, and a detailed description is provided in Appendix H.

**Annoyance.** Noise annoyance is defined by the EPA as any negative subjective reaction to noise on the part of an individual or group. Table 4.4-7 presents the results of over a dozen studies of transportation modes, including airports, investigating the relationship between noise and annoyance levels. This relationship has been suggested by the National Academy of Sciences (1977) and recently re-evaluated (Fidell et al., 1989) for use in describing peoples' reaction to semi-continuous (transportation) noise. These data are shown to provide a perspective on the level of annoyance that might be anticipated. For example, 15 to 25 percent of persons exposed to DNL of 65 to 70 dB are expected to be highly annoyed by the noise levels.

**Table 4.4-7. Percentage of Population Highly Annoyed by Noise Exposure**

DNL Interval in dB	Percentage of Persons Highly Annoyed
<65	<15
65-70	15-25
70-75	25-37
75-80	37-52

Source: Adapted from National Academy of Sciences, 1977

dB = decibel

DNL = day-night average sound level

**Speech Interference.** One of the ways that noise affects daily life is by prevention or impairment of speech communication. In a noisy environment, understanding speech is diminished when speech signals are masked by intruding noises. Reduced intelligibility of speech may also have other effects; for example, if the understanding of speech is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired. Research suggests that aircraft flyover noises that exceed approximately 60 dB (maximum instantaneous sound level [ $L_{max}$ ]) interfere with speech communication (Pearsons and Bennett, 1974; Crook and Langdon, 1974). Increasing the level of the flyover noise maximum to 80 dB will reduce the intelligibility to zero, even if the person speaks in a loud voice. This interference lasts as long as the event, which is momentary for a flyover.

**Sleep Interference.** The effects of noise on sleep are of concern, primarily in assuring suitable residential environments. DNL incorporates consideration of sleep disturbance by assigning a 10 dB penalty to nighttime noise events. SEL may be used to supplement DNL in evaluating sleep disturbance. When evaluating sleep disturbance, studies have correlated SEL values with the percent of people awakened. The relationships between percent awakened and SEL are presented in Appendix H. Most of

these relationships, however, do not reflect habituation and, therefore, would not address long-term sleep disturbance effects. SEL takes into account an event's sound intensity, frequency content, and time duration, by measuring the total A-weighted sound energy of the event and incorporating it into a single number. Unlike DNL, which describes the daily average noise exposure, SEL describes the normalized noise from a single flyover, called an event.

Studies (Lukas, 1975; Goldstein and Lukas, 1980) show great variability in the percentage of people awakened by exposure to noise. A recent review (Pearsons et al., 1989) of the literature related to sleep disturbance, including field as well as laboratory studies, suggests that habituation may reduce the effect of noise on sleep. The authors point out that the relationship between noise exposure and sleep disturbance is complex and affected by the interaction of many variables. The large differences between the findings of the laboratory and field studies make it difficult to determine the best relationship to use. The method developed by Lukas would estimate seven time more awakening than the field results reported by Pearsons.

**Hearing Loss.** Hearing loss is measured in decibels and refers to a permanent auditory threshold shift in an individual's hearing. The EPA (EPA, 1974) has recommended a limiting daily energy value of  $L_{eq}$  70 dB to protect against hearing impairment over a period of 40 years. This daily energy average would translate into a DNL value of approximately 75 dBA or greater. Based on EPA recommendations (EPA, 1974), hearing loss is not expected in people exposed to 75 DNL or less. The potential for hearing loss involves direct exposure, on a regular, continuing long-term basis, to DNLs above 75 dB. The Federal Interagency Committee on Urban Noise (U.S. Department of Transportation, 1980) states that hearing loss due to noise: (1) may begin to occur in people exposed to long-term noise levels of DNL 75 dB and above (2) will not likely occur in people exposed to noise levels between DNL 70 and 75 dB, and (3) will not occur in people exposed to noise levels less than DNL 70 dB.

**Health.** Research investigating the relationship between noise and adverse extra-auditory health effects have been inconclusive. Alleged extra-auditory health consequences of noise exposure which have been studied include birth defects, psychological illness, cancer, stroke, hypertension and cardiac illnesses. Although hypertension appears to be the most biologically plausible of these consequences, studies addressing this issue have failed to provide adequate support. Studies that have found negative consequences have failed to be replicated, thereby questioning the validity of those studies (Freichs et al., 1980; Anton-Guirgis et al., 1986). Studies that have controlled for multiple factors have shown no, or very weak, associations between noise exposure and extra-auditory effects (Thompson and Fidell, 1989). The current state of technical knowledge cannot support inference of a causal or consistent relationship, nor a quantitative dose-response, between residential aircraft noise exposure and health consequences.

**Animals.** Literature concerning the effects of noise on animals is not large, and most of the studies have focused on the relation between dosages of continuous noise and effects (Ames, 1974; Belanovskii and Omel'yanenko, 1982). A literature survey (Kull and Fisher, 1986) found that the literature is

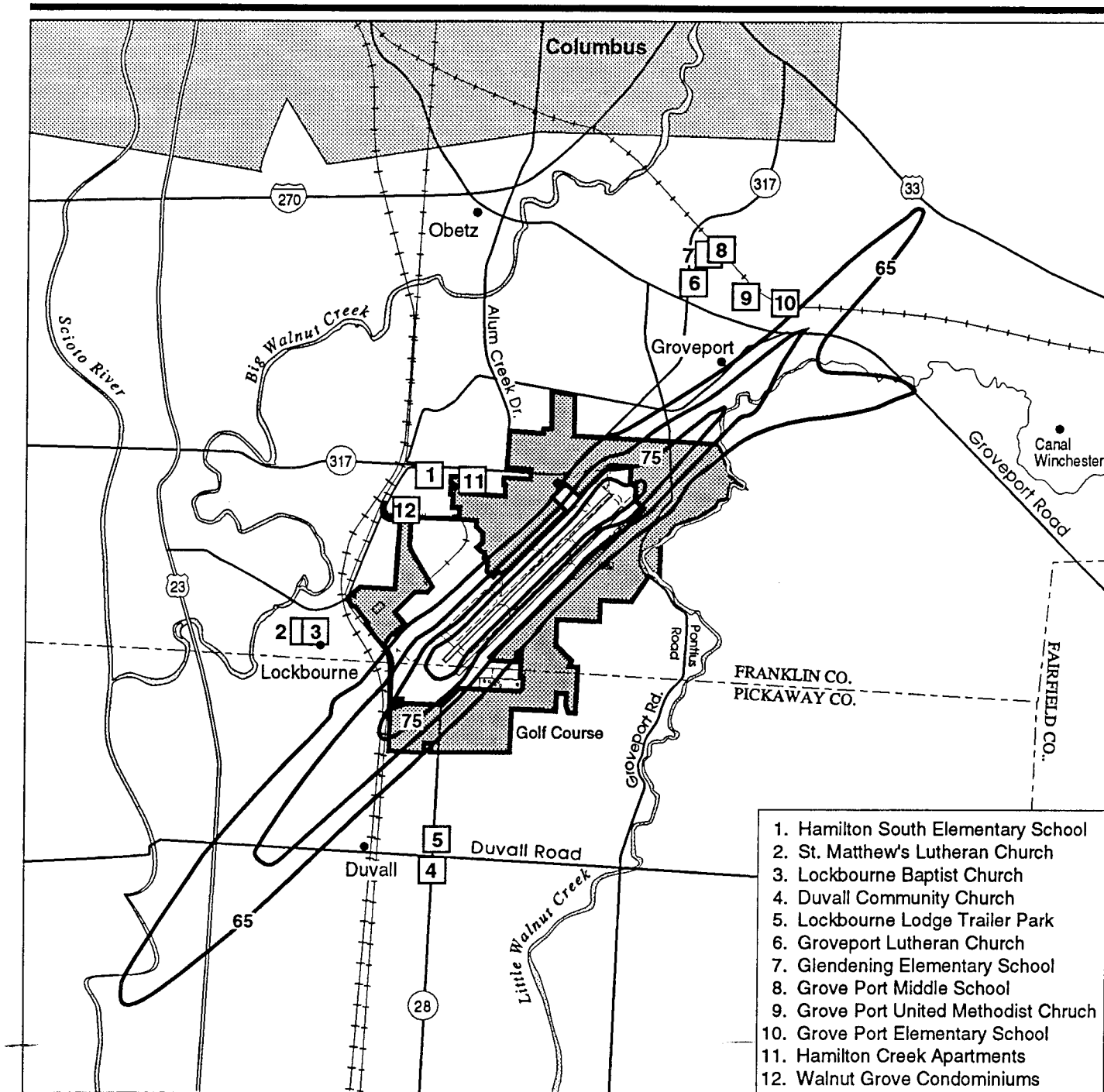
inadequate to document long-term or subtle effects of noise on animals. No controlled study has documented any serious accident or mortality in livestock despite extreme exposure to noise.

**Land Use Compatibility.** Estimates of total noise exposure resulting from aircraft operations, as expressed using DNL, can be interpreted in terms of the compatibility with designated land uses. The Federal Interagency Committee on Urban Noise developed land-use compatibility guidelines for noise (U.S. Department of Transportation, 1980). Based upon these guidelines, suggested compatibility guidelines for evaluating land uses in aircraft noise exposure areas were developed by the FAA and are presented in Section 3.4.4. The land use compatibility guidelines are based primarily on annoyance and hearing loss considerations described in Appendix H. Part 150 of the FAA regulations describes the procedures, standards and methodology governing the development, submission and review of airport noise exposure maps and airport noise compatibility programs. It prescribes use of yearly DNL in the evaluation of airport noise environments. It also identifies those land-use types that are normally compatible with various levels of exposure. Compatible or incompatible land use is determined by comparing the predicted DNL level at a site with the recommended land uses.

**Noise Modeling.** In order to define the noise impacts from aircraft operations at Rickenbacker ANGB, the Air Force's NOISEMAP computer program was used to predict 65, 70, and 75 DNL noise contours and SEL values for noise-sensitive receptors. Appendix H defines these descriptors. The noise contours were generated for the Proposed Action for the baseline year (realignment) (Figure 3.4-5) and three future year projections (5, 10, and 20 years after realignment) (Figures 4.4-1 through 4.4-3). These contours were overlaid on a map of the base and vicinity. Although alternative options are considered for Rickenbacker ANGB, they are all of a smaller scale than the Proposed Action; therefore, impacts from noise will be less than that predicted for the Proposed Action. Input data to NOISEMAP include information on aircraft types; runway use; takeoff, landing, and closed pattern flight tracks; aircraft altitude, speeds, and engine power settings; and number of daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) operations.

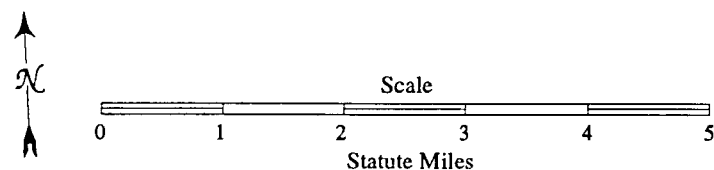
**Major Assumptions.** Military aircraft operations include a mixture of takeoffs, landings, and closed patterns. Civil aviation activities were assumed to be half takeoffs and half landings. Flight tracks, aircraft operations, and mix are included in Appendix H. Vicinity flight tracks used for modeling are shown in Figure H-1 (Appendix H). All takeoffs and landings were assumed to follow standard glide slopes, and published departure and approach patterns. The phasing out of Stage 2 aircraft and their subsequent replacement with Stage 3 aircraft are reflected in aircraft operations by the year 2000. The construction and activation of a third runway, southeast of the two existing runways, was assumed to occur by the year 2014.

**4.4.4.1. Proposed Action.** The results of the aircraft noise modeling for the Proposed Action are presented as noise contours in Figures 4.4-1 through 4.4-3.



#### EXPLANATION

- Noise Contour
- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus



#### 1999 Proposed Action Noise Contours

Figure 4.4-1

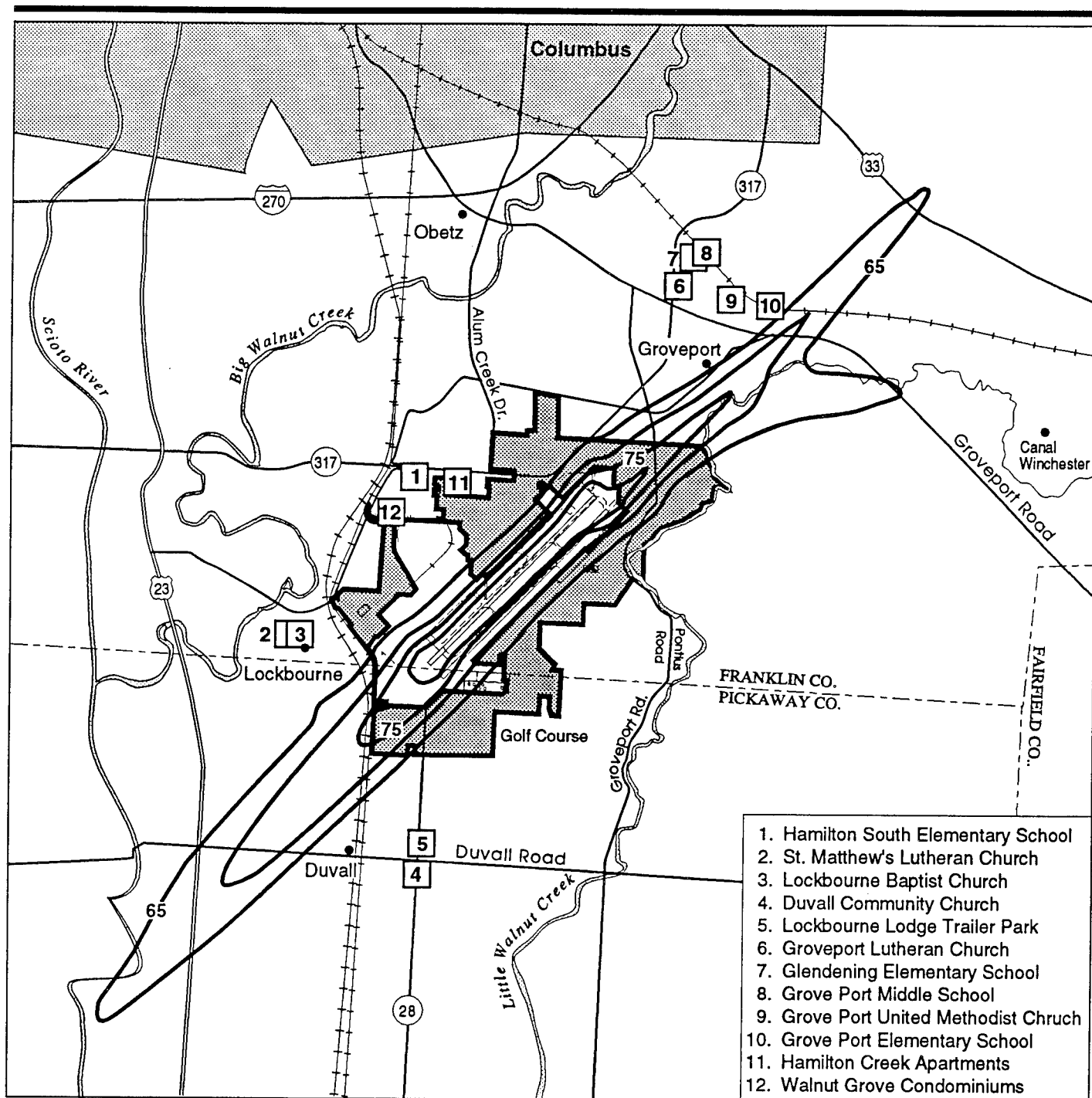
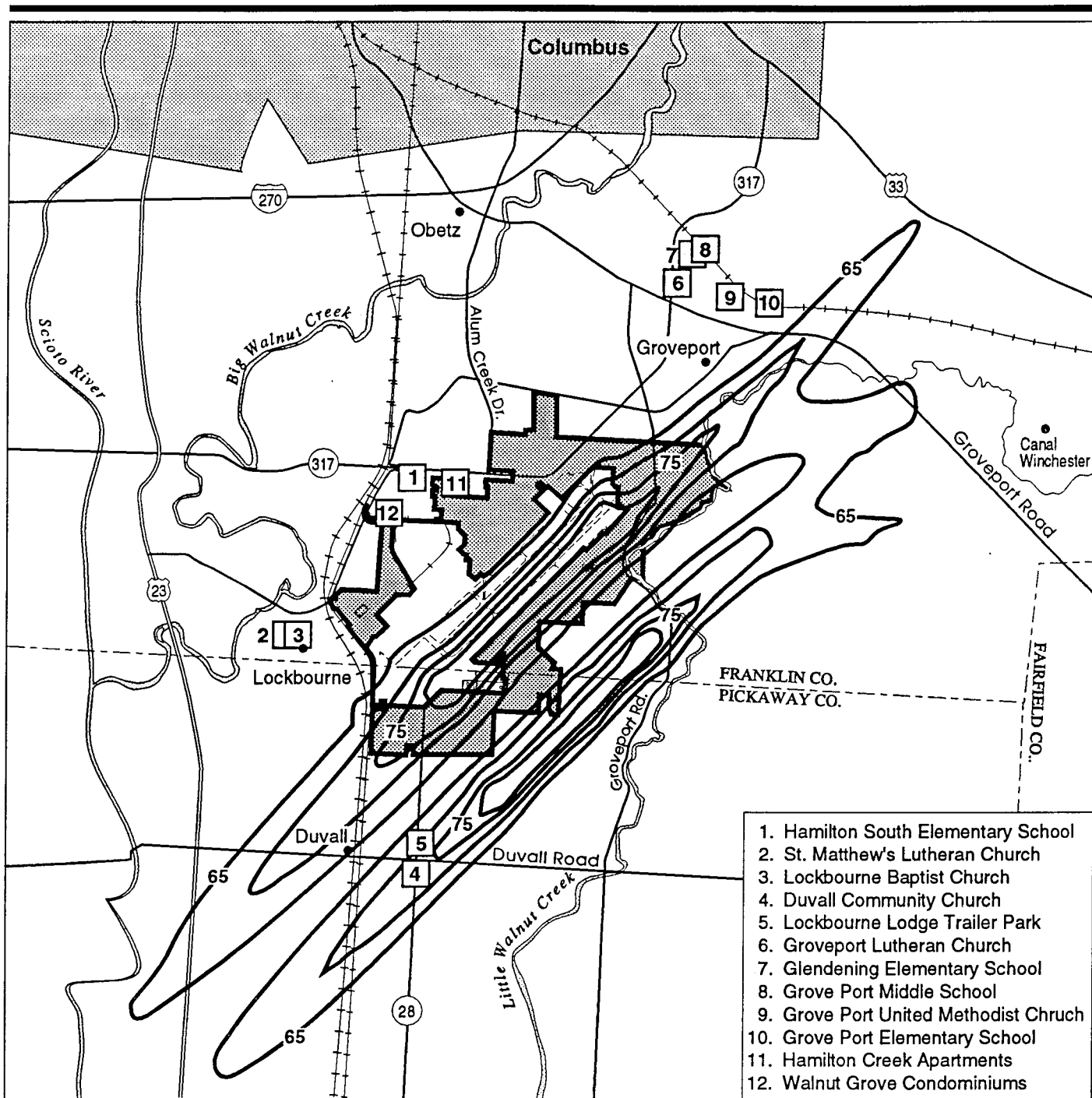


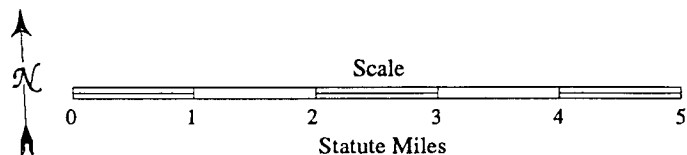
Figure 4.4-2





#### EXPLANATION

- Noise Contour
- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus



#### 2014 Proposed Action Noise Contours

Figure 4.4-3

Table 4.4-8 presents the approximate number of acres and estimated population within each DNL range for each of the study years. Compared to the pre-realignment reference, this represents a total reduction in acreage exposed. The maximum exposure is projected for the realignment baseline. The FAA required conversion of Stage 2 to quieter Stage 3 aircraft by the year 2000 results in reduced noise exposure even though numbers of aircraft operations would continue to increase. However, as aircraft operations continue to increase and a third runway is added by 2014, land area exposed to noise levels greater than  $L_{dn}$  65 would increase, although 1994 levels would not be exceeded.

**Table 4.4-8. DNL Exposure for the Proposed Action**

Year	Alternative	DNL in dB					
		65-70		70-75		>75	
		Acres	Population	Acres	Population	Acres	Population
1994	Realignment Base Line	4,126	1,427	1,719	395	1,035	17
1999	Proposed Action	3,373	1,509	1,447	537	801	89
2004	Proposed Action	3,596	1,616	1,651	623	922	131
2014	Proposed Action	6,219	2,277	2,465	802	1,520	268

dB = decibels

DNL = day-night average sound level

Source: NOISEMAP, 1994

The criteria that define Stage 2 and Stage 3 aircraft are described in FAA Part 36 (FAA, 1988). Noise level limits are defined for takeoff, approach, and sideline measurements. The modeled aircraft operations reflect this phaseout.

Based on 1990 census data, the populations identified above are housed in a combination of multiple and single family dwellings. For the baseline realignment year, 1994, it is estimated that 700 housing units will be exposed to day-night average sound levels greater than  $L_{dn}$  65. By 1999, with predominately Stage 3 engines on aircraft, the number of housing units so exposed would be reduced to 576. As the level of aircraft operations increases, the number of housing units involved would climb to 616 and 862 in the years 2004 and 2014, respectively. It should be noted that total available housing units in the region for the projected years are based on growth projections developed in the 1990 Census and that the total units exposed would never exceed the 1994 baseline realignment level.

SEL was calculated at representative locations for the noisiest and most common jet aircraft; the results are presented in Table 4.4-9. The analysis suggests that for the Proposed Action, some aircraft overflights could affect the sleep of some residents in the area.

**Cumulative Impacts.** There are three reasonably foreseeable actions that could involve the ROI of Rickenbacker ANGB and have the potential to increase the overall acoustic environment in the area. Construction activities associated with modifications to SR 317 would create additive noise; however, this noise would be relatively short-term, and its contribution

would be limited to the period of construction. If an inland port were developed to expand Columbus' capability as a major inland distribution center, additional noise impacts may be anticipated. This proposal, too, would create additional noise of a temporary nature during any construction activities associated with its development. However, with Rickenbacker International Airport proposed as an air cargo niche hub, aircraft operations may have the potential to increase above those assessed, thus increasing aircraft noise. As with the other identified possible actions, creating an inter-modal facility in the area would have short-term noise increases associated with its construction. Additionally, industrial noises associated with its operation may add noise to the region. All three proposals, either individually or collectively, have the potential to add to noise levels in the ROI. Although noise from aircraft operations may continue to dominate day-night average sound level calculations, until specific plans and operations associated with each proposal are defined, no assessments can be made of the acoustic increase the region may experience.

**Mitigation Measures.** It is recommended that the RPA complete a new Part 150 Study addressing current and proposed airport operations. Information developed as part of this process is vital to effective long-range comprehensive planning for both the RPA and the abutting civilian communities. The process directly supports identification of compatible use zones and the development of applicable zoning for the areas adjacent to the airport.

**4.4.4.2. Aviation with Industrial Park.** Aviation activities under this alternative would be at the same level as the Proposed Action. However, no new runway would be constructed. For this reason, noise impacts under this alternative would be identical to those addressed under the Proposed Action except for the year 2014. The noise contours for this alternative in the year 2014 are shown in Figure 4.4-4. As shown in Table 4.4-9, the number of people affected in the year 2014 is slightly lower for this alternative than for the Proposed Action.

**Table 4.4-9. DNL Exposure for the Aviation with Industrial Park Alternative**

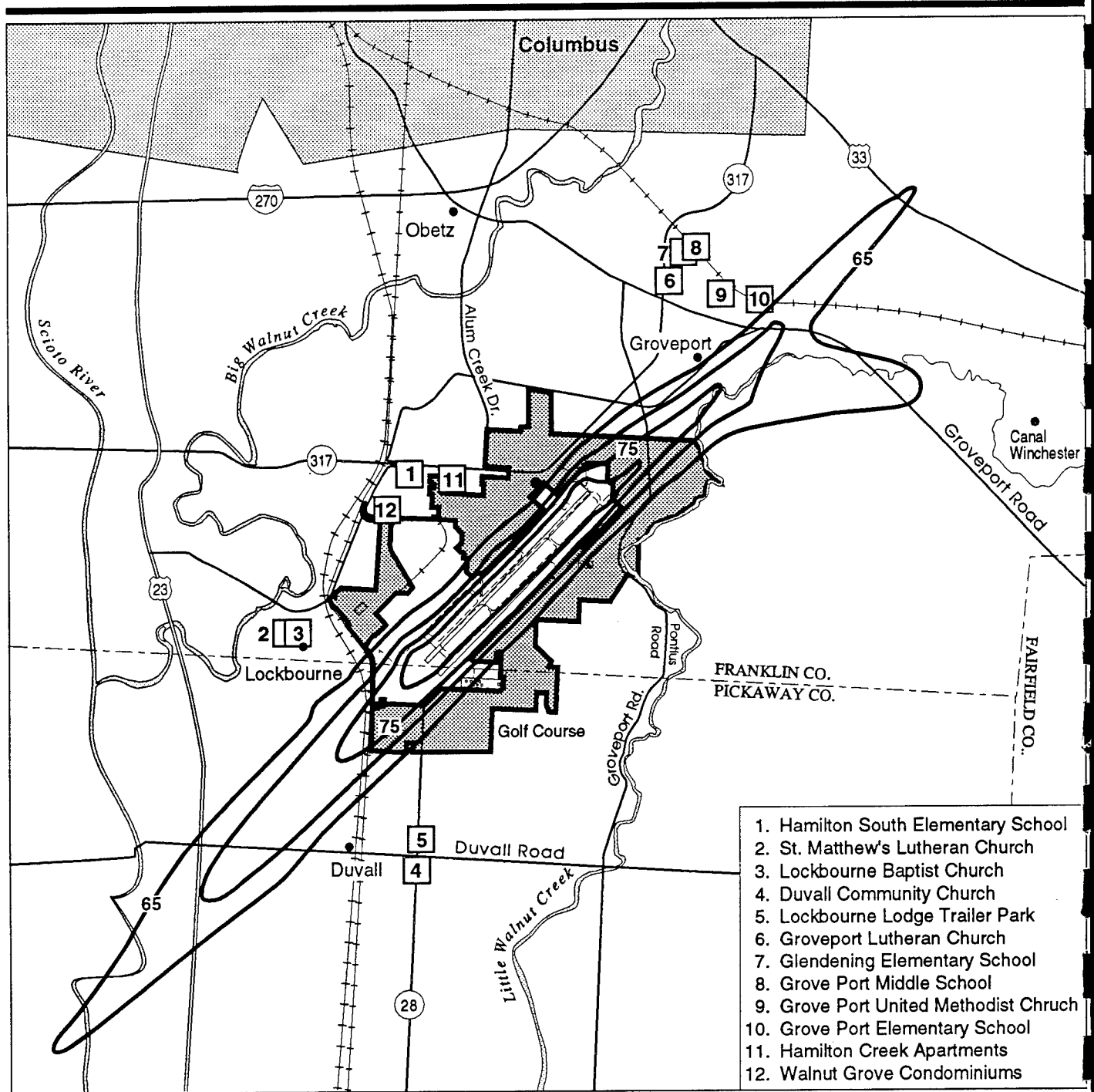
Year	Alternative	DNL in dB					
		65-70		70-75		>75	
		Acres	Population	Acres	Population	Acres	Population
2014	Aviation with Industrial Park	5,589	2,103	2,619	884	1,700	231

dB = decibels

DNL = day-night average sound level

Source: NOISEMAP, 1994

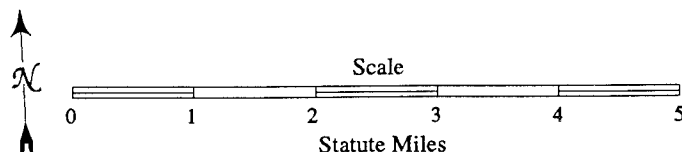
The amount of land area exposed to noise levels of greater than Ldn 65 under this alternative is shown in Table 4.4-10.



1. Hamilton South Elementary School
2. St. Matthew's Lutheran Church
3. Lockbourne Baptist Church
4. Duvall Community Church
5. Lockbourne Lodge Trailer Park
6. Groveport Lutheran Church
7. Glendening Elementary School
8. Grove Port Middle School
9. Grove Port United Methodist Church
10. Grove Port Elementary School
11. Hamilton Creek Apartments
12. Walnut Grove Condominiums

#### EXPLANATION

- Noise Contour
- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus



#### 2014 Aviation with Industrial Park Noise Contours

Figure 4.4-4

**Table 4.4-10. DNL Exposure for the Aviation with Mixed Use Alternative**

Year	Alternative	DNL in dB		
		65-70 Acres	70-75 Acres	>75 Acres
1994	Realignment Baseline	4,126	1,719	1,035
1999	Aviation with Mixed Use	2,266	1,119	745
2004	Aviation with Mixed Use	2,288	1,142	766
2014	Aviation with Mixed Use	2,443	1,218	823

dB = decibels

DNL = day-night average sound level

Source: NOISEMAP, 1994

The aircraft most contributing to noise exposure are identified in Table 4.4-11.

**Table 4.4-11. Sound Exposure Levels at Representative Noise Receptors**

Location	Noise Receptor	Sound Exposure Level (dB)					
		Aircraft Type					
		C-130	C-141	C-135B	DC-8	727	747
Rickenbacker ANGB	Hamilton South Elementary School	84	82	80	80	79	70
Lockbourne	St. Matthew's Lutheran Church	90	87	86	87	85	75
Lockbourne	Lockbourne Baptist Church	92	89	87	88	86	77
Duval	Duval Community Church	85	87	88	86	84	74
Duval	Lockbourne Lodge Trailer Park	81	90	91	87	85	76
Groveport	Groveport Lutheran Church	90	84	83	86	84	74
Groveport	Glendening Elementary School	83	82	80	84	81	71
Groveport	Groveport Middle School	81	82	80	84	81	72
Groveport	Groveport United Methodist Church	83	87	89	89	87	78
Groveport	Groveport Elementary School	84	94	99	91	89	83
Rickenbacker ANGB	Hamilton Creek Apartments	80	85	85	83	81	72
Rickenbacker ANGB	Walnut Grove Condominiums	83	83	82	81	79	69

dB = decibels

Source: NOISEMAP 1994

**4.4.4.3. Aviation with Mixed Use.** Under this alternative, aviation activities would still continue at Rickenbacker ANGB, but at a reduced level and rate of growth. Under this alternative, aviation operations would be 77,146 in 1994; 79,941 in 1999; 84,245 in 2004; and 92,381 in 2014. Although noise impacts would probably follow the same trend as described

for the Proposed Action under this alternative, those impacts would be significantly less than under the Proposed Action. Furthermore, after the year 2000, the complete conversion from Stage 2 aircraft to Stage 3 aircraft should further ameliorate the operational increases.

**4.4.4.4. No-Action Alternative.** Aviation activities under the No-Action Alternative would be at the same level and rate of growth as described for the Aviation with Mixed Use Alternative. Anticipated noise impacts under this alternative are the same as described in Section 4.4.4.3.

**4.4.4.5. Other Land Use Concepts.** Flight activities would not be affected by the other land use concepts, and therefore noise levels would be unaffected. All of the facilities involved are beyond the  $L_{dn}$  65 contour. However, for those facilities proposed for use as residences, SELs that would most likely be experienced could result in some level of annoyance and affect the sleep of some occupants.

#### **4.4.5 Biological Resources**

Biological resources addressed in relation to the disposal and reuse of portions of Rickenbacker ANGB include vegetation, wildlife, threatened and endangered species, and sensitive habitats. Primary data sources for the analysis include published literature, reports, and contacts with agencies such as the U.S. Fish and Wildlife Service (USFWS) and the Ohio Department of Fish and Game. Additionally, a base-wide ecological risk assessment is currently being prepared. Data from this study were also used in the preparation of this Draft EIS.

The ROI for the biological resources assessment comprised Rickenbacker ANGB itself, other areas directly affected by reuse alternatives, and an area extending approximately three miles around the base property. Vegetation and sensitive biological resources (e.g., wetlands and protected species) on the base were mapped using USFWS National Wetlands Inventory maps (Lockbourne, OH) and Ohio Wetlands Inventory map (Lockbourne, OH).

Impacts were analyzed by identifying the types and locations of all proposed actions and comparing these locations with the locations of known biological resources in the area. The status (threatened or endangered) and sensitivity of the biological resources that may be affected were determined. Impacts were assessed qualitatively based on literature and scientific expertise concerning the responses of plants and animals to project-related disturbances such as noise, landscaping, and vegetation maintenance.

The Proposed Action and reuse alternatives (except No-Action) could have a minor effect on biological resources through alteration or loss of vegetation and wildlife habitat. These impacts are described below for each alternative.

The following assumptions were used in analyzing the effects of the Proposed Action and alternatives:

- All staging and other areas that would be disturbed temporarily by construction would be located in previously disturbed areas (e.g., paved or cleared areas) to the fullest extent possible.

- Proportions of disturbance associated with each land use category were determined based on accepted land use planning concepts. Development within each parcel could occur at one or more locations anywhere within that category, except areas designated as vacant land on the project maps.
- Potential direct impacts to biological resources would result from ground disturbance and habitat alteration associated with demolition, construction, operation and/or maintenance of new or modified facilities.

**4.4.5.1 Proposed Action.** Approximately 90 percent of the area within Rickenbacker ANGB has been modified to landscape, buildings, parking area, and other developments. The remaining undeveloped areas are found along the river corridors. However, all areas within the study area where ground disturbance would occur under the Proposed Action, including areas that are currently vacant, have been previously disturbed. The acreages of these disturbed areas are provided in Table 2.2-3.

Foreseeable impacts from the Proposed Action include (1) loss of approximately eight acres of landscaped grass areas, (2) disturbance of small wooded areas, (3) disturbance to riparian areas, (4) disturbance of wetlands, (5) noise disturbance from increased airfield operations until the year 2000, and (6) increased human activity from demolition and construction. Human disturbance would occur as a result of the addition of approximately 4,000 jobs (Section 4.2.1.1). With increased population, noise and automobile-related pollution would also increase. Demolition and construction of buildings, taxiways, runways, and roads would also affect noise levels and air quality.

**Vegetation.** Currently, base areas not occupied by buildings or pavement are covered by a 40:60 mixture of Kentucky fescue (*Festuca* sp.) and Kentucky bluegrass (*Poa* sp.). These are shown in Figure 3.4-6 as landscaped areas. The Proposed Action would result in a loss of approximately eight acres of these grasses to industrial development. While these grassy areas are considered disturbed, large grassy areas such as exist on the base are an important resource for food and cover for some species of urban-adapted wildlife.

Small wooded areas (less than five acres) would be disturbed by industrial development in the south and southwestern areas of the base and along riparian areas (see Figure 3.4-6). The remainder of the construction disturbance would occur in presently disturbed areas that have low biological value.

Riparian areas and aquatic vegetation could potentially be impacted where the Proposed Action development approaches (1) the Little Walnut Creek where it bends closest to the northeast corner of the base; (2) the riparian area that flows between Alum Creek Drive and Little Walnut Creek along the northern boundary of the base; and (3) Big Walnut Creek where it approaches the southwestern corner of the base, north of Lockbourne. Measures should be taken to control runoff from construction sites and prevent erosion along these areas.

**Wildlife.** The lack of substantial resident wildlife populations within the ROI limits the potential for impacts on this resource from operations associated with the Proposed Action. The Proposed Action would disturb landscaped grass, wooded, and riparian areas. Species that would be affected, if present, include those with relatively small home ranges such as some birds, including horned lark (*Eremophila alpestris*) and killdeer (*Charadrius vociferous*); mammals, including Eastern gray squirrel (*Sciurus carolinensis*) and woodchuck (*Marmota monax*); fish, including small-mouth bass (*Micropterus dolomieu*); and reptiles and amphibians, including spring frog (*Hyla* sp.), that depend on those areas for food, cover, or nesting areas (see Appendix L for a detailed species list for Rickenbacker ANGB). Increased noise, dust, and human activity from construction and demolition could adversely affect animals sensitive to disturbance or existing on poor quality habitat. There would be a corresponding increase in noise levels as aircraft operations expand until the year 2000 (see Section 4.4.4). While this could have an adverse impact on wildlife species sensitive to noise and air pollution, species in the area of Rickenbacker ANGB have been exposed to aircraft noise since 1942. In the last 50 years, animal species which are sensitive to noise have either moved away from the base or have become accustomed to the current noise levels.

**Threatened and Endangered Species.** The upland sandpiper, is the only federally protected species found in the immediate vicinity of the base. The species prefers upland fields with tall grasses. The Proposed Action calls for construction of industrial warehousing, a four-lane extension of Alum Creek road, and expansion of SR 317 in the area where the upland sandpiper is known to occur. This species was not included in the species list requested under Section 7 consultation. Impacts of aircraft noise on upland sandpipers is expected to be minimal, based on the literature available. According to a study by Henningson, Durham and Richardson, Inc. (1981), least terns (*Sterna albifrons antillarum*) continued normal behavior in a nesting colony during nearby launches of Minuteman missiles from Vandenberg AFB in California. No adverse impacts on the birds' reproductive behavior was observed. The long-term implications of noise stress are not addressed in this study and may have an impact on sensitive species, although, as stated above, aircraft activities in the vicinity of the airport have been much higher in the past and have been relatively constant over the last 50 years. Since the upland sandpiper has been nesting in areas that were once part of the base, it is assumed that the noise and aircraft activities are not a major deterrent to the sandpiper's use of the area.

Rickenbacker ANGB is within the range of the following federally endangered species: Indiana bat (*Myotis sodalis*), peregrine falcon (*Falco peregrinus*), sciotomimid (a fish, *Noturus trautmani*), clubshell mussel (*Pleurobema clava*), northern riffleshell mussel (*Epioblasma torulosa rangiana*). The proposed action is not expected to adversely impact these species. The type, quality, and quantity of the habitat found on the Rickenbacker ANGB is not expected to change appreciatively under this proposed action therefore, no adverse impact is expected to either the Indiana bat and peregrine falcon. Neither of these two species has been recorded on the base. The aquatic species are known from occurrences located to the north, and upstream of the base and this habitat would not be disturbed as a result of the proposed action.



**Sensitive Habitats.** There are 111 wetlands within the Proposed Action total planning area and 44 wetlands, within the Proposed Action study area as shown on the National Wetlands Inventory planning map (Figures 3.4.6). A survey has not been performed on Rickenbacker ANGB to determine if any of these are jurisdictional wetlands. Once the survey has been completed, the following conditions would apply:

1. The filling of wetland areas totaling less than ten acres does not require an individual Army Corps of Engineers (COE) permit, because this activity is covered by existing authorization of a nationwide permit.
2. Filling a wetland between one and ten acres requires prior notification to the COE, whereas filling of a wetland under one acre does not.
3. In spite of the above requirements, notification of the COE is recommended when any disturbance of wetlands is planned, even in cases where filling of less than one acre is anticipated.

The potential impact of disturbing those wetlands within the area of the Proposed Action would be the loss of associated sensitive habitats. The base was built on a landfilled marsh, and the surrounding area is also very marshy. The loss of a portion of the wetland habitats on the base would not significantly decrease wetland habitat in the general vicinity. However, mitigation of impacts on these wetlands would be required if they are determined to be jurisdictional.

**Cumulative Impacts.** The Proposed Action study area has been previously disturbed and is considered to have no pristine areas. All areas where ground disturbance would occur, including those that are currently vacant, have been previously disturbed. However, the loss of landscaped grassy areas, disturbance of small wooded areas, potential disturbance to riparian vegetation and wetlands, and increased human activity within the ROI would all result in minor impacts to biological resources.

While the areas involved are small, the loss of approximately eight acres of landscaped grass areas and disturbance of wooded areas would affect those species that depend on that habitat for food and cover. Mobile species would be displaced to adjacent areas and less mobile species would be destroyed. If disturbance of small riparian areas occurs, fish, mammals, birds, and vegetation would be adversely affected. Loss of wetlands can be crucial to those species that depend upon a limited resource. Many of the wetlands that may be lost are temporarily or seasonally flooded areas which can be important to breeding populations of fish, insects, amphibians, mammals, and birds. Increases in human activity from demolition, construction, and use of facilities would initially disrupt animal behavior because of increased noise and air pollution. Long-term effects may include abandonment of the area by some species. An increase in noise levels may result in abandonment of marginal habitat by species that have become accustomed to the current levels. Widening of SR-317 to the north of the base and extension of Alum Creek road to four lanes may adversely impact the upland sandpiper due to increased human activity and automobile traffic near areas where that species is known to occur.

1 These potential impacts, when considered with other habitat destruction  
2 resulting from residential and industrial growth in the ROI, would have a  
3 slight cumulative impact on biological resources.

4 **Mitigation Measures.** Some landscaped grassy areas that are currently  
5 mowed could be left unmowed to provide areas for re-establishment of  
6 native vegetation. Vacant areas could be planted with native vegetation.  
7 Tall grasses would provide cover for small mammals and insects, thereby  
8 providing food sources for raptors and mammals. The threatened upland  
9 sandpiper prefers fields with tall grasses. New areas of tall grasses could  
10 provide new habitat to replace any potential habitat lost to project-related  
11 disturbance.

12 Some wooded areas could be retained, because of the excellent cover and  
13 food source they provide for animals. Areas that are vacant could be  
14 planted with native trees to provide habitat to replace that which is lost in  
15 other areas.

16 Disturbance of riparian areas should be minimized due to the fragile nature  
17 of riparian ecosystems. Possible measures to control construction runoff  
18 include the use of berms, silt curtains, straw bales, and other appropriate  
19 erosion control techniques. Native trees and vegetation could be planted  
20 along riparian areas to increase favorable habitat for wildlife and prevention  
21 of erosion.

22 Wetlands on base are protected by Executive Order 11990 and Section 404  
23 of the Clean Water Act. Suggested mitigation strategies for wetland impacts  
24 include:

- 25 1. avoidance of direct and indirect disturbance of wetlands through  
26 facility design or appropriate restrictions in the transfer documents;
- 27 2. on-site (if possible) replacement of any wetland lost at a rate  
28 determined through consultation with USFWS and COE;
- 29 3. recreation of wetland habitat elsewhere on site or purchase and  
30 fencing of any off-site replacement habitat; and
- 31 4. monitoring of any replacement wetlands until habitat becomes well  
32 established to determine the effectiveness of replacement and any  
33 remedial measures necessary.

34 Disturbance of wetlands could be minimized by controlling runoff from  
35 construction sites into drainages through use of berms, silt curtains, straw  
36 bales, and other appropriate techniques. Equipment could be washed in  
37 areas where wash water can be contained and treated or evaporated.

38 Human activity disturbance could be decreased in areas of important wildlife  
39 habitat by directing activity away from those areas. This could be achieved  
40 by appropriate location of new roads and facilities, building fences to protect  
41 unique areas, and by planting trees to create noise and visual buffers.

#### 4.4.5.2 Aviation with Industrial Park Alternative.

The Aviation with Industrial Park Alternative is similar to the Proposed Action, except that no new parallel runway would be developed. Aviation support activities and industrial development would occur on land currently owned by RPA. Airfield activities would continue to operate in a similar manner to the current operations. New construction would be slightly less than under the Proposed Action. Disturbed acreage in the RPA planning area outside the study area would be similar to the Proposed Action in the first two phases and less in the third phase (see Table 2.3-1).

Impacts from the Aviation with Industrial Park Alternative would be the same types as those described in the Proposed Action. However, 18 fewer wetlands would be disturbed in the RPA total planning area under this alternative.

**Vegetation.** The Aviation with Industrial Park Alternative would result in impacts similar to those described for the Proposed Action, although of slightly lesser magnitude.

Riparian area and aquatic vegetation impacts would be as described for the Proposed Action.

**Wildlife.** The Aviation with Industrial Park Alternative would result in impacts similar to those described for the Proposed Action, although of slightly lesser magnitude.

**Threatened and Endangered Species.** The impacts to threatened and endangered species under the Aviation with Industrial Park Alternative would be the same as described for the Proposed Action. The Aviation with Industrial Park Alternative calls for construction of industrial warehousing, widening of Alum Creek road from two to four lanes, and expansion of SR 317 in the area where the upland sandpiper is known to occur.

**Sensitive Habitats.** Within the Aviation with Industrial Park Alternative study area (Figure 4.3-1) 44 wetlands occur, and 93 wetlands occur within the alternative total planning area (Figure 4.3-2). This is 18 less in the planning area than under the Proposed Action. As with the Proposed Action, a jurisdictional survey has not yet been performed. Impacts and mitigations would be as described for the Proposed Action.

**Cumulative Impacts.** The Aviation with Industrial Development Alternative would be in a previously disturbed location that is considered to include no pristine areas. Cumulative impacts would be the same as those described for the Proposed Action. Due to loss of landscaped grasses, disturbance of small wooded areas, potential disturbance to riparian vegetation and wetlands, and increased human activity within the ROI, there would be a minor cumulative impact to biological resources.

**Mitigation Measures.** Because the potential impacts for this alternative are the same as those for the Proposed Action, the same mitigation measures are recommended.

**4.4.5.3 Aviation with Mixed Use Alternative.** This alternative would result in more moderate growth than the Proposed Action or Aviation with Industrial Park Alternative. Of all the reuse alternatives, this would involve the lowest level of air operations and the maximum reuse of existing facilities. However, the same types of adverse impacts on biological resources would occur under this alternative as under the Proposed Action and the Aviation with Industrial Park Alternative. Of significance to biological resources are the proposed 40 acres of landscaped park and 116 acres of open/undeveloped areas.

Foreseeable impacts from the Aviation with Mixed-Use Alternative include (1) minimal noise disturbance from aircraft, (2) minimal noise, air pollution, and human activity disturbance from construction/demolition activities, (3) increased disturbance from human activity related to use of recreational facilities and landscaped parks, and (4) beneficial impacts from addition of grass and open/vacant areas.

**Vegetation.** The Aviation with Mixed-Use Alternative would include 40 acres of landscaped grasses and 116 acres of open/vacant areas (Figure 2.3-4). The vacant areas could become re-established with native vegetation.

Wooded and riparian areas would be minimally affected because of the low levels of air operations and construction/demolition of facilities.

**Wildlife.** The lack of substantial resident populations of wildlife associated with the ROI limits the potential impacts on this resource. This alternative would beneficially affect wildlife by providing grasses and open areas that could be used by wildlife for hunting, cover, and nesting. This could benefit numerous species of birds, reptiles, amphibians, small mammals, and insects.

The proposed 40 acres of landscaped grass would have both negative and positive implications to wildlife. The recreational area would include a lake and open areas, both of which would increase use of that area by some species. However, this recreational area also would increase human activity. Species that are adaptable to human activity would not be affected, while others may vacate the area. The 116 acres of vacant/open land includes approximately three acres of wetlands. These wetlands tend to be seasonally or temporarily flooded and are important in the spring for breeding populations of animals.

Adverse impacts to wildlife under this alternative would due to noise, dust, and increased human activity during demolition and construction of facilities. By the year 2000, aircraft would comply with the Stage 3 noise standard. While air cargo operations are expected to grow at 3.5% annually, the long-term affects from noise associated with aircraft may be minimal. The airfield would continue to operate in a manner similar to current operations; species that currently occur near the airfield would be minimally impacted.

**Threatened and Endangered Species.** The Aviation with Mixed-Use Alternative would have minimal impacts where the upland sandpiper (*Sterna antillarum*) is currently found. This alternative would not include expansion of Alum Creek Road and would eventually increase landscaped grasses and

vacant/open areas, which are potential habitat for this species. Noise impacts from construction/demolition and aircraft would be minimal.

The four species of mullusk and two species of fish that are threatened or endangered, and found upstream of the base would not be affected by this alternative. However, a Section 7 consultation reply from the USFWS has not been received. This consultation would be completed before further action would be taken.

**Sensitive Habitats.** There are 44 small wetlands within the Aviation with Mixed-Use Alternative study area and 93 small wetlands within the alternative total planning area. Mitigation of potential disturbance to these wetlands would be required if they are determined to be jurisdictional, as described for the Proposed Action.

**Cumulative Impacts.** The Aviation with Mixed-Use Alternative study area has been previously disturbed and is considered to have no pristine areas. Minimal adverse impacts would occur under this alternative. Increasing the landscaped grass and vacant/open areas would have a beneficial impact on wildlife, since it would increase the habitat for the upland sandpiper and other animals. A negative impact would result from increased human activity in these recreational areas. Minimal wetlands areas would be disturbed. Construction, demolition, and aviation activities would increase annually at very low rates and with minimal impact to biological resources.

**Mitigation Measures.** Mitigation measures would generally be the same as described above for the Proposed Action. The lake that would be used for public recreation could support both recreation and wildlife habitat. A portion of the lake could be established as a small wetlands, away from the area used most intensively by recreations.

**4.4.5.4 No-Action Alternative.** Under this alternative, no land at Rickenbacker ANGB would be disposed. There would no new construction, demolition, or reuse of facilities. Maintenance of the base would have minimal adverse effects on biological resources. A reduction in human activity would reduce disturbance (particularly noise and alteration of habitat) to wildlife on and near the base. Habitat quality for wildlife could improve if mowing of unlandscaped areas were terminated, thereby allowing vegetation to grow to its natural height. This would allow populations of wildlife species to increase and would have an overall positive effect on biological resources at Rickenbacker ANGB.

**4.4.5.5 Other Land Use Concepts.** As described in Section 2.3.3, several independent federal transfers and land use concepts have been proposed. These actions may take place in addition to one of the other reuse alternatives.

Biological impacts from these proposed reuses would be minimal. No buildings would be constructed or demolished, and therefore no noise, air quality, or human impacts associated with those activities would occur. Wetlands, wooded areas, and landscaped grass habitat would not be lost. The threatened upland sandpiper is found to the northeast of the buildings included in these proposals, but the sandpiper is not likely to be adversely impacted by the proposed activities. Disturbance from increased human

activity and increased automobile traffic may have a minimal impact on other biological resources.

#### 4.4.6 Cultural Resources

Potential impacts on cultural resources were assessed by (1) identifying types and possible locations of reuse activities that could directly or indirectly affect cultural resources, and (2) identifying the nature and potential significance of cultural resources in potentially affected areas. Pursuant to the National Historic Preservation Act (NHPA), consultation has been initiated with the Ohio State Historic Preservation Office (SHPO), as directed by the Section 106 review process.

Historic properties, under 36 CFR 800, are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)". This term includes, for the purposes of these regulations, artifacts, records, and remains that are related to and located within such properties. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria. Therefore, sites not yet evaluated are considered potentially eligible to the NRHP and, as such, are afforded the same regulatory consideration as nominated or listed historic properties.

As a federal agency, the Air Force is responsible for identifying any historic properties at Rickenbacker ANGB. This identification process typically includes field surveys, recording of cultural resources, and evaluation of significance in terms of NRHP criteria. NRHP criteria and related qualities of significance are discussed in Appendix E, Methods of Analysis. Completion of this process results in a listing of historic properties subject to federal regulations regarding the treatment of cultural resources.

SHPO consultation has been initiated by the Air Force. The SHPO is reviewing recommendations concerning structures on the base which exceed 50 years of age. A preliminary evaluation concluded that these resources are not NRHP eligible (Anderson and Marquart, 1993); however, the buildings have not been evaluated formally, and the SHPO has not commented yet on these findings. An archaeological survey of the base concluded that no archaeological sites occur on base, and it is unlikely that significant paleontological resources will be found (see Section 3.4.6). If the SHPO concurs that base realignment would have no effect on historic properties, Air Force requirements under Section 106 would be complete. However, impacts could occur on cultural resources that may exist on off-base parcels to be developed by the RPA in association with the Proposed Action or the reuse alternatives.

**4.4.6.1 Proposed Action.** Because there are no historic properties as defined in the NHPA or paleontological resources on base, base realignment would not affect cultural resources. No federally recognized Native American groups live in the state of Ohio, and it is unlikely that resources of value to Native Americans exist on the base.

No noise-related impacts to National Register properties are expected from overflights of military aircraft.

Impacts could occur on cultural resources that may exist on off-base parcels (totaling 4,511 acres) to be developed by RPA. Reuse activities would not affect the one archaeological site recorded within the planning area (Section 3.4.6).

**Cumulative Impacts.** Since there are no historic properties on the base, reuse activities would not add to cumulative impacts on cultural resources in the ROI.

**Mitigation Measures.** Since reuse activities would not affect cultural resources, no mitigation measures would be required.

Potential impacts on cultural resources that may occur on off-base parcels to be developed by RPA would be mitigated according to applicable federal, state, and local regulations.

**4.4.6.2 Aviation with Industrial Park Alternative.** As discussed for the Proposed Action, reuse activities on Rickenbacker ANGB would not affect cultural resources, because there are no historic properties or paleontological resources on base.

Impacts could occur on cultural resources that may exist on off-base parcels (totaling approximately 2,794 acres) to be developed by the RPA in association with this alternative. The one previously recorded site would not be affected.

**Cumulative Impacts.** Since there are no historic properties on Rickenbacker ANGB, reuse activities would not add to cumulative impacts on cultural resources in the ROI.

**Mitigation Measures.** Since reuse activities would not affect cultural resources, no mitigation measures would be required.

Potential impacts on cultural resources that may occur on off-base parcels to be developed by RPA would be mitigated according to applicable federal, state, and local regulations.

**4.4.6.3 Aviation with Mixed Use Alternative.** As discussed for the Proposed Action, reuse activities on Rickenbacker ANGB would not affect cultural resources, because there are no historic properties or paleontological resources on base.

Impacts could occur on cultural resources that may exist on off-base parcels (totaling approximately 2,794 acres) to be developed by RPA. The one previously recorded site would not be affected.

**Cumulative Impacts.** Since there are no historic properties on the base, reuse activities would not add to cumulative impacts on cultural resources in the ROI.

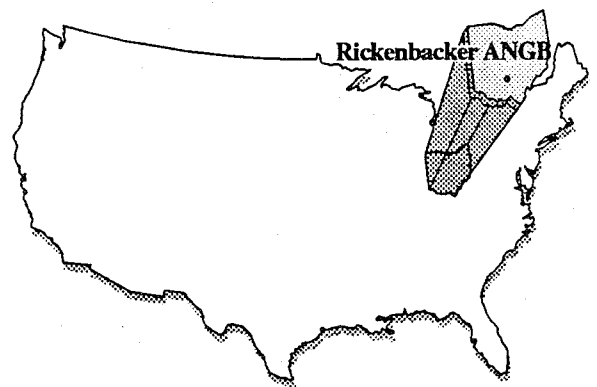
Potential impacts on cultural resources that may occur on off-base parcels to be developed by RPA would be mitigated according to applicable federal, state, and local regulations.

**Mitigation Measures.** Since reuse activities would not affect cultural resources, no mitigation measures would be required.

**4.4.6.4 No-Action Alternative.** There would be no impacts on cultural resources resulting from implementation of the No-Action Alternative, because Rickenbacker ANGB property would remain under caretaker status.

**4.4.6.5 Other Land Use Concepts.** None of the proposed plans identified as federal transfers or independent land use concepts would have an impact on cultural resources, because no construction or demolition would be involved, and none of the buildings proposed for reuse meet NRHP eligibility criteria.





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## **CHAPTER 5**

# **CONSULTATION AND COORDINATION**

## 5.0 CONSULTATION AND COORDINATION

### FEDERAL AGENCIES

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 U.S. Department of the Air Force, Rickenbacker Air National Guard Base  
 U.S. Department of Agriculture, Soil Conservation Service  
 U.S. Department of the Navy, San Bruno, California.  
 U.S. Environmental Protection Agency  
 U.S. Fish and Wildlife Service, Reynoldsburg, Ohio.

### STATE AGENCIES

Ohio Air National Guard  
 Ohio Army National Guard  
 Ohio Department of Natural Resources, Division of Natural Areas and Preserves.  
 Ohio Department of Transportation.  
 Ohio Environmental Protection Agency, Division of Air Pollution Control.  
 Ohio Geological Survey.  
 Ohio Historical Society.  
 Ohio State Historic Preservation Office.  
 Ohio State University Geology Library.

### LOCAL/REGIONAL AGENCIES

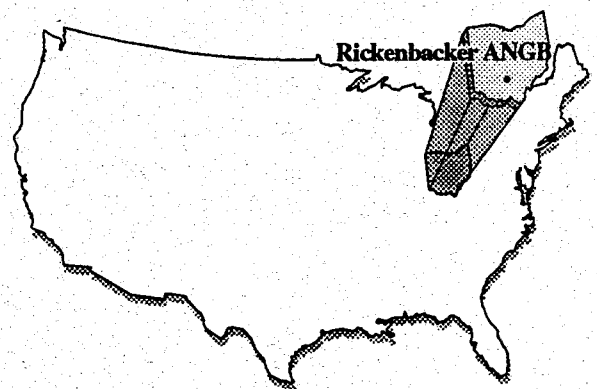
City of Columbus Department of Public Works.  
 City of Columbus Division of Water.  
 Franklin County Department of Public Works.  
 Franklin County Engineering Office.  
 Franklin County Zoning Office.  
 Mid-Ohio Regional Planning Commission.  
 Pickaway County Engineering Office.  
 Rickenbacker International Airport.  
 Rickenbacker Port Authority.  
 Solid Waste Authority of Central Ohio.  
 Village of Groveport, Administrator's Office.

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 Columbus Gas of Ohio.  
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 Miller General Services.

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## **CHAPTER 6**

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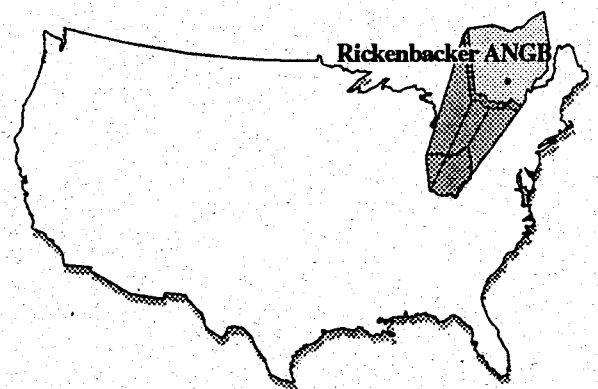
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## **CHAPTER 7**

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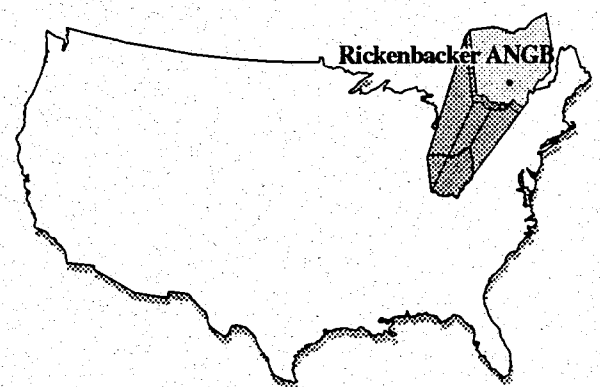
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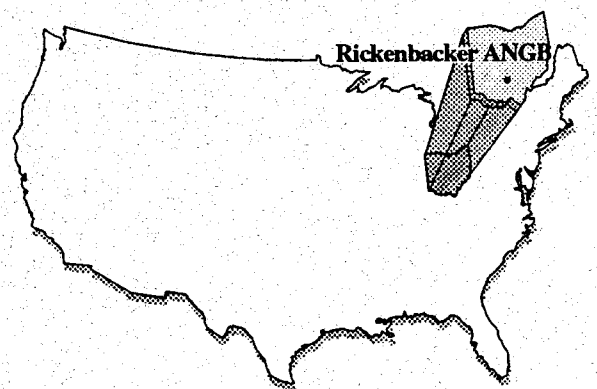
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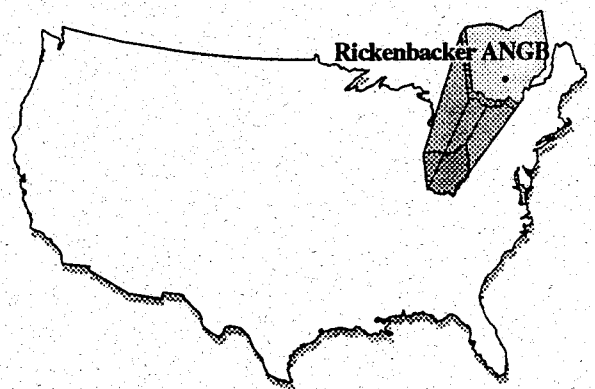




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## APPENDICES



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## APPENDIX A

## **APPENDIX A**

### **GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS**

## APPENDIX A

### GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS

#### GLOSSARY OF TERMS

**A-weighted.** A system utilizing a filter to deemphasize the very low and very high frequency components of sound in a manner similar to the frequency response of the human ear.

**Acetone.** Colorless, volatile, flammable, moderately toxic, liquid aromatic hydrocarbon, used as a solvent.

**Acoustics.** The science of sound which includes the generation, transmission, and effects of sound waves, both audible and inaudible.

**Advisory Council on Historic Preservation.** A 19-member body appointed, in part, by the President of the United States to advise the President and Congress and to coordinate the actions of federal agencies on matters relating to historic preservation, to comment on the effects of such actions on historic and archaeological cultural resources, and to perform other duties as required by law (Public Law 89-655; 16 U.S. Code 470).

**Aesthetics.** Referring to the perception of beauty.

**Aircraft operation.** An operation consists of one take-off, landing, or closed pattern.

**Airport Traffic Area (ATA).** Airspace within a radius of 5 statute miles of an airport with an operating control tower, encompassing altitudes between the surface and 3,000 feet AGL, in which an aircraft cannot operate without prior authorization from the control tower.

**Alluvial.** Composed of alluvium.

**Alluvium.** Clay, silt, sand, gravel or similar material deposited by running water.

**Ambient Air Quality Standards (AAQS).** Standards established on a state or federal level that define the limits for airborne concentrations of designated "criteria" pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, total suspended particulates, ozone and lead), to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

**Ambient noise level.** The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.

**Aquifer.** The water-bearing portion of subsurface earth material that yields or is capable of yielding useful quantities of water to wells.

**Archaeology.** A scientific approach to the study of human ecology, cultural history, and cultural process.

**Arterial.** Signalized street that serves primarily through-traffic and provides access to abutting properties as a secondary function.

**Asbestos.** A carcinogenic substance formerly used widely as an insulation material by the construction industry; often found in older buildings.

- 1    **Association.** Two or more soils occurring together in a characteristic pattern.
- 2    **Attainment area.** A region that meets the National Ambient Air Quality Standards for a criteria pollutant  
3    under the Clean Air Act.
- 4    **Average Annual Daily Traffic (AADT).** For a one-year period, the total volume passing a point or  
5    segment of a highway facility in both directions, divided by the number of days in the year.
- 6    **Benzene.** Colorless, volatile, flammable, toxic liquid aromatic hydrocarbon.
- 7    **Biophysical.** Pertaining to the physical and biological environment, including the environmental  
8    conditions crafted by man.
- 9    **Biota.** The plant and animal life of a region.
- 10   **Capacity.** The maximum rate of flow at which vehicles can be reasonably expected to traverse a point  
11   or uniform segment of a lane or roadway during a specified time period under prevailing roadway, traffic,  
12   and control conditions.
- 13   **Carbon disulfide.** Colorless, flammable, poisonous liquid, used as a solvent.
- 14   **Carbon monoxide (CO).** A colorless, odorless, poisonous gas produced by incomplete fossil-fuel  
15   combustion. One of the six pollutants for which there is a national ambient standard. See Criteria  
16   pollutants.
- 17   **Chlorobenzene.** Flammable, volatile, toxic liquid used as a solvent.
- 18   **Class I, II, and III Areas.** Under the Clean Air Act, clean air areas are divided into three classes. Very  
19   little pollution increase is allowed in Class I areas, some increase in Class II areas, and more in Class III  
20   areas. National parks and wilderness areas receive mandatory Class I protection. All other areas start  
21   out as Class II. States can reclassify Class II areas up or down, subject to federal requirements.
- 22   **Commercial aviation.** Aircraft activity licensed by state or federal authority to transport passengers  
23   and/or cargo for hire on a scheduled or nonscheduled basis.
- 24   **Comprehensive Plan.** A public document, usually consisting of maps, text, and supporting materials,  
25   adopted and approved by a local government legislative body, which describes future land uses, goals,  
26   and policies.
- 27   **Contaminants.** Undesirable substances rendering something unfit for use.
- 28   **Control Zone.** Controlled airspace with a normal radius of 5 statute miles from a primary airport plus  
29   any extensions needed to include instrument arrival and departure paths, encompassing altitudes  
30   between the surface and 14,449 feet MSL.
- 31   **Convey.** To deliver title of property to non-federal entity.
- 32   **Council on Environmental Quality (CEQ).** Established by the National Environmental Policy Act  
33   (NEPA), the CEQ consists of three members appointed by the President. CEQ regulations (40 CFR  
34   Parts 1500-1508, as of July 1, 1986) describe the process for implementing NEPA, including preparation  
35   of environmental assessments and environmental impact statements, and the timing and extent of public  
36   participation.

- 1 **Corrosive.** A material that has the ability to cause visible destruction of living tissue and has a  
2 destructive effect on other substances. An acid or a base.
- 3 **Criteria pollutants.** The Clean Air Act required the Environmental Protection Agency to set air quality  
4 standards for common and widespread pollutants after preparing "criteria documents" summarizing  
5 scientific knowledge on their health effects. Today there are standards in effect for six criteria pollutants:  
6 sulfur oxide (SO<sub>2</sub>), carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM<sub>10</sub>),  
7 nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), and lead (Pb).
- 8 **Cultural resources.** Prehistoric and historic districts, sites, buildings, objects, or any other physical  
9 evidence of human activity considered important to a culture, subculture, or a community for scientific,  
10 traditional, religious, or any other reason.
- 11 **Cumulative impacts.** The combined impacts resulting from all activities occurring concurrently at a  
12 given location.
- 13 **Day-Night Average Sound Level (DNL).** The 24-hour average-energy sound level expressed in  
14 decibels, with a 10-decibel penalty added to sound levels between 10:00 p.m. and 7:00 a.m. to account  
15 for increased annoyance due to noise during night hours.
- 16 **Day-Night Noise Level (L<sub>dn</sub>).** The average A-weighted noise level during a 24-hour day, obtained after  
17 addition of 10 decibels to levels measured in the night between 2200 and 0700 hours. In general, an L<sub>dn</sub>  
18 value of 65 dB is the noise level at which residential land use compatibility becomes questionable for  
19 structures with average or below average acoustic insulation.
- 20 **dBA.** The sound pressure level in decibels as measured on a sound level meter using the A-weighting  
21 filter network. The A-weighting filter deemphasizes the very low and very high frequency components of  
22 the sound in a manner similar to the frequency response of the human ear and correlates well with  
23 subjective reactions to noise. All sound levels in this report are A-weighted.
- 24 **Decibel (dB).** A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10  
25 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals  
26 (20 micronewtons per square meter).
- 27 **Defense Environmental Restoration Account (DERA).** DOD account from which IRP activities are  
28 funded.
- 29 **di-n-octyl phthalate.** Clear, oily liquid, used in making vinyl.
- 30 **Disposal.** Orderly placement or distribution of property.
- 31 **Easement.** A right or privilege (agreement) that a person may have on another's property.
- 32 **Effluent.** Waste material discharged into the environment.
- 33 **Endangered Species.** A species that is threatened with extinction throughout all or a significant portion  
34 of its range.
- 35 **Environmental Impact Analysis Process (EIAP).** The process of conducting environmental studies as  
36 outlined in Air Force Regulations 19-2.
- 37 **Equivalent Noise Level (L<sub>eq</sub>).** A single value of sound level for any desired duration, which includes *all*  
38 of the time-varying sound energy in the measurement period. The major virtue of the Equivalent Sound  
39 Level is that it correlates reasonably well with the effects of noise on people, even for wide variations in

- 1 environmental sound levels and time patterns. It is used when only the durations and levels of sound,  
2 and not their times of occurrence (day or night), are relevant. It is easily measurable by available  
3 equipment. It also is the basis of a measurement descriptor of the total outdoor noise environment, the  
4 *Day-Night Sound Level (L<sub>dn</sub>)*.
- 5 **Erosion.** Wearing away of soil and rock by weathering and the action of streams, wind, and  
6 underground water.
- 7 **Excess Property.** Property that is reported to GSA as no longer required by a federal agency. This  
8 property is then made available to all other federal agencies.
- 9 **Ethylbenzene.** Liquid aromatic hydrocarbon used as a solvent.
- 10 **Faults.** Fracture in earth's crust accompanied by a displacement of one side of the fracture with respect  
11 to the other and in direction parallel to the fracture.
- 12 **Fault block.** Crustal units bounded by faults.
- 13 **Fleet mix.** Combination of aircraft used by a given agency.
- 14 **Frequency.** The time rate (number of times per second) that the wave of sound repeats itself, or that a  
15 vibrating object repeats itself; now expressed in Hertz (Hz), formerly in cycles per second (cps).
- 16 **Friable.** Easily crumbled or reduced to powder.
- 17 **Fungicides.** Any substance that kills or inhibits the growth of fungi.
- 18 **General aviation.** All aircraft that are not commercial or military aircraft.
- 19 **Geomorphic.** Pertaining to the form of the earth or its surface features.
- 20 **Groundwater.** Water within the earth that supplies wells and springs.
- 21 **Groundwater basin.** Subsurface structure having the character of a basin with respect to collection,  
22 retention, and outflow of water.
- 23 **Habituate.** To become accustomed to frequent repetition or prolonged exposure.
- 24 **Hazardous material.** Generally, a substance or mixture of substances that has the capability of either  
25 causing or significantly contributing to an increase in mortality or an increase in serious irreversible or  
26 incapacitating reversible illness; or posing a substantial present or potential risk to human health or the  
27 environment. Use of these materials is regulated by Department of Transportation (DOT).
- 28 **Hazardous waste.** A waste, or combination of wastes, which, because of its quantity, concentration, or  
29 physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an  
30 increase in mortality or an increase in serious irreversible illness; or pose a substantial present or  
31 potential hazard to human health or the environment when improperly treated, stored, transported,  
32 disposed of, or otherwise managed. Regulated under the Resource Conservation and Recovery Act  
33 (RCRA).
- 34 **Herbicides.** A pesticide, either organic or inorganic, used to destroy unwanted vegetation, especially  
35 various types of weeds, grasses, and woody plants.

- 1 **Hydrocarbons.** Any of a vast family of compounds containing hydrogen and carbon. Used loosely to  
2 include many organic compounds in various combinations; most fossil fuels are composed  
3 predominantly of hydrocarbons. When hydrocarbons mix with nitrogen oxides in the presence of  
4 sunlight, ozone is formed; hydrocarbons in the atmosphere contribute to the formation of ozone.
- 5 **Impacts.** An assessment of the meaning of changes in all attributes being studied for a given resource;  
6 an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective  
7 technique. In this EIS, as well as in the CEQ regulations, the word impact is used synonymously with the  
8 word effect.
- 9 **Infrastructure.** The basic installations and facilities on which the continuance and growth of a  
10 community, state, etc., depend (e.g., roads, schools, power plants, transportation, and communication  
11 systems, etc.).
- 12 **Interstate.** The designated National System of Interstate and Defense Highways located in both rural  
13 and urban areas; they connect the East and West coasts and extend from points on the Canadian border  
14 to various points on the Mexican border.
- 15  **$L_{eq}$ .** The equivalent steady state sound level which in a stated period of time would contain the same  
16 acoustical energy as time-varying sound level during the same period.
- 17 **Liquefaction Susceptibility.** Potential for fluidization and loss of mechanical strength of saturated soils  
18 during an earthquake.
- 19  **$L_{dnmr}$ .** The onset-rate adjusted monthly day-night average A-weighted sound level. This metric was  
20 developed by the Armstrong Aerospace Medical Research Laboratory.
- 21  **$L_{dnmx}$ .** The highest A-weighted sound level observed during a single event of any duration.
- 22 **Lead (Pb).** A heavy metal used in many industries, which can accumulate in the body and cause a  
23 variety of negative effects. One of the six pollutants for which there is a national ambient air quality  
24 standard. See Criteria pollutants.
- 25 **Level of service (LOS).** In transportation analyses, a qualitative measure describing operational  
26 conditions within a traffic stream and how they are perceived by motorists and/or passengers. In public  
27 services, a measure describing the amount of public service (e.g., fire protection and law enforcement  
28 services) available to community residents, generally expressed as the number of personnel providing  
29 the services per 1,000 population.
- 30 **Lithic.** Pertaining to stone material.
- 31 **Loam, loamy.** Rich permeable soil composed of a mixture of clay, silt, sand, and organic matter.
- 32 **Loudness.** The qualitative judgment of intensity of a sound by a human being.
- 33 **Magnitude.** Richter scale logarithmic measurement of the energy released by an earthquake.
- 34 **Masking.** The action of bringing one sound (audible when heard alone) to inaudibility or to  
35 unintelligibility by the introduction of another sound.
- 36 **Military Operations Areas (MOAs).** Airspace areas of defined vertical and lateral limits established for  
37 the purpose of separating certain training activities, such as air combat maneuvers, air intercepts, and  
38 acrobatics, from other air traffic operating under instrument flight rules.



1 **Mineral.** Naturally occurring inorganic element or compound.

2 **Mineral resources.** Mineral deposits that may eventually become available; known deposits not  
3 recoverable at present or yet undiscovered.

4 **Mitigation.** A method or action to reduce or eliminate program impacts.

5 **Multi-family housing.** Townhouse or apartment units that accommodate more than one family though  
6 each dwelling unit is only occupied by one household.

7 **National Ambient Air Quality Standards (NAAQS).** Section 109 of the Clean Air Act requires EPA to  
8 set nationwide standards, the National Ambient Air Quality Standards, for widespread air pollutants.  
9 Currently, six pollutants are regulated by primary and secondary NAAQS carbon monoxide, lead,  
10 nitrogen dioxide, ozone, particulate matter (PM<sub>10</sub>), and sulfur dioxide. See Criteria pollutants.

11 **National Priority List (NPL).** A list of sites (federal and state) that contain hazardous materials that  
12 may cause an unreasonable risk to the health and safety of individuals, property, or the environment.

13 **National Register of Historic Places.** A register of districts, sites, buildings, structures, and objects  
14 important in American history, architecture, archaeology, and culture, maintained by the Secretary of the  
15 Interior under authority of Section 2(b) of the Historic Sites Act of 1935 and Section 101(a)(1) of the  
16 National Historic Preservation Act of 1966, as amended.

17 **Native Americans.** Used in a collective sense to refer to individuals, bands, or tribes who trace their  
18 ancestry to indigenous populations of North America prior to Euro-American contact.

19 **Native vegetation.** Plant life that occurs naturally in an area without agricultural or cultivational efforts.  
20 It does not include species that have been introduced from other geographical areas and become  
21 naturalized.

22 **National Environmental Policy Act (NEPA).** Public Law 91-190, passed by Congress in 1969. The Act  
23 established a national policy designed to encourage consideration of the influences of human activities  
24 (e.g., population growth, high-density urbanization, industrial development) on the natural environment.  
25 NEPA also established the Council on Environmental Quality. NEPA procedures require that  
26 environmental information be made available to the public before decisions are made. Information  
27 contained in NEPA documents must focus on the relevant issues in order to facilitate the decision-  
28 making process.

29 **Nitrogen dioxide (NO<sub>2</sub>).** Gas formed primarily from atmospheric nitrogen and oxygen when  
30 combustion takes place at high temperature. NO<sub>2</sub> emissions contribute to acid deposition and formation  
31 of atmosphere ozone. One of the six pollutants for which there is a national ambient standard. See  
32 Criteria pollutants.

33 **Nitrogen oxides (NO<sub>x</sub>).** Gases formed primarily by fuel combustion, which contribute to the formation  
34 of acid rain. Hydrocarbons and nitrogen oxides combine in the presence of sunlight to form ozone, a  
35 major constituent of smog.

36 **Noise.** Any sound that is undesirable because it interferes with speech and hearing, or is intense enough  
37 to damage hearing, or is otherwise annoying (unwanted sound).

38 **Noise attenuation.** The reduction of a noise level from a source by such means as distance, ground  
39 effects, or shielding.

- 1 **Noise contour.** A curve connecting points of equal noise exposure on a map. Noise exposure is often  
2 expressed using the average day-night sound level, DNL.
- 3 **Nonattainment area.** An area that has been designated by the Environmental Protection Agency or the  
4 appropriate state air quality agency, as exceeding one or more National or State Ambient Air Quality  
5 Standards.
- 6 **100-year flood zone.** Land area having a 1-percent chance of being flooded during a given year.
- 7 **Operating Location (OL).** An organization established by the Air Force to ensure base resource  
8 protection, grounds maintenance, existing utilities operations as necessary, and building care.
- 9 **Outlease.** Contract by which government conveys real estate or facilities for a specified term and for a  
10 specified rent.
- 11 **Ozone (O<sub>3</sub>)(ground level).** A major ingredient of smog. Ozone is produced from reactions of  
12 hydrocarbons and nitrogen oxides in the presence of sunlight and heat. Some 68 areas, mostly  
13 metropolitan areas, did not meet a 31 December 1987 deadline in the Clean Air Act for attaining the  
14 ambient air quality standard for ozone.
- 15 **Passenger Car Equivalent.** The number of passenger cars that are displaced by a single heavy vehicle  
16 of a particular type under prevailing roadway, traffic, and control conditions.
- 17 **PCB-contaminated equipment.** Equipment that contains a concentration of PCBs from 50 to 499 ppm  
18 and regulated by the U.S. EPA.
- 19 **PCB equipment.** Equipment that contains a concentration of PCBs of 500 ppm or greater and regulated  
20 by the U.S. EPA.
- 21 **PCB items.** Equipment that contains a concentration of PCBs from 5 to 49 ppm and regulated by the  
22 State EPA.
- 23 **Permeability.** The capacity of a porous rock or sediment to transmit a fluid.
- 24 **Pesticides.** Any substance, organic or inorganic, used to destroy or inhibit the action of plant or animal  
25 pests; the term thus includes insecticides, herbicides, fungicides, rodenticides, miticides, fumigants, and  
26 repellents. All pesticides are toxic to humans to a greater or lesser degree. Pesticides vary in  
27 biodegradability.
- 28 **Physiographic Province.** A region in which all parts are similar in geologic structure and climate.
- 29 **Pitchblende.** A mineral formed by radioactive decay, often found in sulfide-bearing veins.
- 30 **Pleistocene.** An earlier epoch of the Quaternary period during the "ice age" beginning approximately 3  
31 million years ago and ending 10,000 years ago. Also refers to the rocks and sediments deposited during  
32 that time.
- 33 **Plume.** An elongated mass of contaminated fluid moving with the flow of the fluid.
- 34 **Polychlorinated biphenyls (PCBs).** Any of a family of industrial compounds produced by chlorination  
35 of biphenyl. These compounds are noted chiefly as an environmental pollutant that accumulates in  
36 organisms and concentrates in the food chain with resultant pathogenic and teratogenic effects. They  
37 also decompose very slowly.

- 1     **Potable water.** Suitable for drinking.
- 2     **Prehistoric.** The period of time before the written record.
- 3     **Prevention of Significant Deterioration (PSD).** In the 1977 Amendments to the Clean Air Act,  
4 Congress mandated that areas with air cleaner than required by National Ambient Air Quality Standards  
5 must be protected from significant deterioration. The Clean Air Act's PSD program consists of two  
6 elements: requirements for best available control technology on major new or modified sources, and  
7 compliance with an air quality increment system.
- 8     **Prevention of Significant Deterioration Area.** A requirement of the Clean Air Act (160 et seq.) that  
9 limits the increases in ambient air pollutant concentrations in clean air areas to certain increments even  
10 though ambient air quality standards are met.
- 11    **Prime farmland.** Environmentally significant agricultural lands protected from irreversible conversion to  
12 other uses.
- 13    **Primary roads.** A consolidated system of connected main roads important to regional, statewide, and  
14 interstate travel; they consist of rural arterial routes and their extensions into and through urban areas of  
15 5,000 or more population.
- 16    **Quartz.** Monzonite (basement complex), coarse-grained igneous rock containing quartz, feldspar, and  
17 mafic minerals.
- 18    **Recent.** The time period from approximately 10,000 years ago to the present and the rocks and  
19 sediment deposited during that time.
- 20    **Sediment.** Material deposited by wind or water.
- 21    **Seismicity.** Relative frequency and distribution of earthquakes.
- 22    **Seismic Zone III.** Area designated in the Uniform Building Code as a moderate risk zone for major  
23 earthquake damage and intensities of VI or more on the Modified Mercalli Scale in proximity to a major  
24 fault system.
- 25    **Shrink/Swell Potential.** Volume change possible upon wetting or drying.
- 26    **Single-Family Housing.** A conventionally built house consisting of a single dwelling unit occupied by  
27 one household.
- 28    **Site.** As it relates to cultural resources, any location where humans have altered the terrain or discarded  
29 artifacts.
- 30    **Sludge.** A heavy, slimy deposit, sediment, or mass resulting from industrial activity; solids removed  
31 from wastewater.
- 32    **Soil Series.** A group of soils having similar parent materials, genetic horizons, and arrangement in the  
33 soil profile.
- 34    **Solvent.** A substance that dissolves or can dissolve another substance.
- 35    **Sound.** The auditory sensation evoked by the compression and rarefaction of the air or other  
36 transmitting medium.

- 1 **Sound Exposure Level (SEL).** The sound exposure level is a measure of the physical energy of the  
2 noise event which takes into account both intensity (loudness) and duration. The SEL is based on the A-  
3 weighted sound level above a specified threshold which is at least 10 dB below the maximum value  
4 measured during the noise event and is expressed as the 1-sec energy averaged equivalent sound level  
5 ( $L_{eq}$  1 sec).
- 6 **State Historic Preservation Officer (SHPO).** The official within each state, authorized by the state at  
7 the request of the Secretary of the Interior, to act as liaison for purposes of implementing the National  
8 Historic Preservation Act.
- 9 **Sulfur dioxide ( $SO_2$ ).** A toxic gas that is produced when fossil fuels, such as coal and oil, are burned.  
10  $SO_2$  is the main pollutant involved in the formation of acid rain.  $SO_2$  also can irritate the upper  
11 respiratory tract and cause lung damage. During 1980, some 27 million tons of sulfur dioxide were  
12 emitted in the U.S., according the Office of Technology Assessment. The major source of  $SO_2$  in the  
13 U.S. is coal-burning electric utilities.
- 14 **Surplus Property.** Property designated as excess that is of no interest to any federal agency. These  
15 properties are made available to state, local or non-profit organizations or sold to private organizations.
- 16 **Tectonic framework.** Structural elements of a region including the rising, stable, and subsiding areas.
- 17 **Terminal Control Area (TCA).** Controlled airspace extending upward from the surface or higher to  
18 specified altitudes, within which all aircraft are subject to operating rules (i.e., altitudes, direction of flight,  
19 etc.) and equipment requirements.
- 20 **Tetrachlorobenzene.** Liquid aromatic hydrocarbon used as a solvent.
- 21 **Tetrachloroethene.** Colorless corrosive liquid, used as a solvent.
- 22 **Therm.** A measurement of units of heat.
- 23 **Threatened Species.** Plant and wildlife species likely to become endangered in the foreseeable future.
- 24 **Toluene.** Liquid aromatic hydrocarbon used as solvent.
- 25 **Total Suspended Particulates (TSP).** The particulate matter in the ambient air. The previous national  
26 ambient air quality standard for particulates was based on TSP levels; it was replaced in 1987 by an  
27 ambient standard based on  $PM_{10}$  levels.
- 28 **Transfer.** Deliver title to another federal agency.
- 29 **Transition Area.** Controlled airspace extending 700 feet or more upward from the surface of the earth  
30 when designated in conjunction with an airport for which an approved instrument approach procedure  
31 has been prescribed; or from 1,200 feet or more above the surface of the earth when designated in  
32 conjunction with airway route structures or segments. Unless otherwise specified, transition areas  
33 terminate at the base of the overlying controlled airspace.
- 34 **UNICOM.** Special frequency for two-way radio communication between the ground (airport) and aircraft  
35 pilot to provide safe and orderly flow of traffic at smaller airports not controlled by the FAA. Each airport  
36 has its own frequency.
- 37 **Unified Soil Classification System.** A rapid method for identifying and grouping soils for military  
38 construction. Soils are grouped by grain-size, gradation, and liquid limit.

- 1 **U.S. Environmental Protection Agency (U.S. EPA).** The independent federal agency, established in  
2 1970, that regulates environmental matters and oversees the implementation of environmental laws.
- 3 **Wetlands.** Areas that are inundated or saturated with surface or groundwater at a frequency and  
4 duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil. This  
5 classification includes swamps, marshes, bogs, and similar areas.
- 6 **Volume.** The number of vehicles passing a point on a land, roadway, or other trafficway during some  
7 time interval.
- 8 **Xylene.** Liquid aromatic hydrocarbon used as a solvent.
- 9 **Zoning.** The division of a municipality (or county) into districts for the purpose of regulating land use,  
10 types of building, required yards, necessary off-street parking, and other prerequisites to development.  
11 Zones are generally shown on a map and the text of the zoning ordinance specifies requirements for  
12 each zoning category.

## ACRONYMS/ABBREVIATIONS

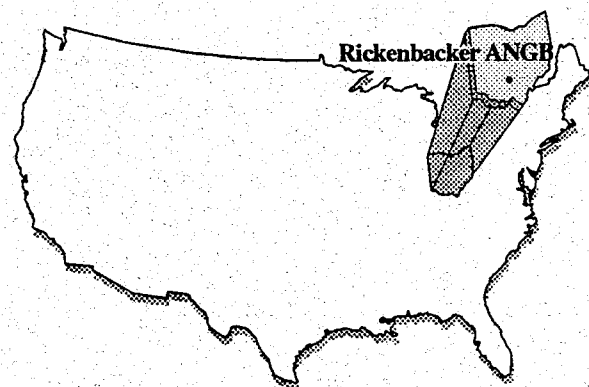
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3	AADT	average annual daily traffic
4	ACBM	asbestos-containing building materials
5	ADT	average daily traffic
6	ACBT	air combat training
7	ACM	asbestos containing material
8	AFB	Air Force Base
9	AFBCA	Air Force Base Conversion Agency
10	AFCEE	Air Force Center for Environmental Excellence
11	AFR	Air Force Regulation
12	AFRES	Air Force Reserve
13	AG	Airlift Group
14	AGL	above ground level
15	AHERA	Asbestos Hazard Emergency Response Act
16	AICUZ	Air Installation Compatible Use Zone
17	ALP	Airport Layout Plan
18	ANG	Air National Guard
19	ANGB	Air National Guard Base
20	ANGRC	Air National Guard Readiness Center
21	ANSI	American National Standards Institute
22	APE	Area of Potential Effect
23	APZs	Accident Potential Zones
24	ARG	Air Refueling Group
25	ARSA	Airport Radar Service Area
26	ARTCC	Air Route Traffic Control Center
27	ARW	Air Refueling Wing
28	ASTs	above-ground storage tanks
29	ATA	Airport Traffic Area
30	ATC	air traffic control
31	ATCT	air traffic control tower
32	BASH	bird-aircraft strike hazard
33	BCE	Base Civil Engineering
34	BSCP	Base Spill Contingency Plan
35	BUSTR	Bureau of Underground Storage Tank Regulations
36	BX	Base Exchange
37	CAA	Clean Air Act (federal)
38	CAAA	Clean Air Act Amendments
39	CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
40	CEQ	Council on Environmental Quality
41	CFR	Code of Federal Regulations
42	CO	carbon monoxide
43	COE	Corps of Engineers
44	CO <sub>x</sub>	carbonic acid
45	COTA	Central Ohio Transit Authority
46	CSPC	Consumer Product Safety Commission
47	CSX	Chesapeake & Ohio Railroad Companies
48	db	decibel
49	dBA	A-weighted decibel
50	DBCRA	Defense Base Closure and Realignment Act
51	DDTWL	double-dual tandem wheel loading
52	DEIS	Draft Environmental Impact Statement
53	DERP	Defense Environmental Restoration Program

1	DNL	day-night average sound level
2	DOD	Department of Defense
3	DOT	Department of Transportation
4	DRMO	Defense Reutilization and Marketing Office
5	EA	Environmental Assessment
6	ECAMP	Environmental Compliance Assessment and Management Program
7	EDMS	Emissions Dispersion Modeling System
8	EIAP	Environmental Impact Analysis Process
9	EIS	Environmental Impact Statement
10	EPA	Environmental Protection Agency
11	FAA	Federal Aviation Administration
12	FAR	Federal Aviation Regulations
13	FBO	Fixed Base Operator
14	FEIS	Final Environmental Impact Statement
15	FG	Fighter Group
16	FHWA	Federal Highway Administration's Highway Noise Model
17	FICUN	Federal Interagency Committee on Urban Noise
18	FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
19	FPMR	Federal Property Management Regulations
20	FS	Feasibility Study
21	FTE	full-time equivalent
22	FTZ	Foreign Trade Zone
23	FW	Fighter Wing
24	FY	fiscal year
25	GIS	computerized geographical information system
26	gpd	gallons per day
27	GSA	General Services Administration
28	HAPS	hazardous air pollutants
29	HARM	Hazard Assessment Rating Methodology
30	HAS	Hazard Assessment Scores
31	HCM	Highway Capacity Manual
32	HHS	Department of Health and Human Services
33	HMTA	Hazardous Materials Transportation Act
34	HUD	Department of Housing and Urban Development
35	HWMP	Hazardous Waste Management Plan
36	I-70	Interstate 70
37	I-270	Interstate 270
38	IFR	instrument flight rules
39	ILS	instrument landing system
40	IR	instrument route
41	IRP	Installation Restoration Program
42	ITE	Institute of Traffic Engineers
43	K	hydraulic conductivity values
44	KIAS	knots indicated airspeed
45	KTAS	knots true airspeed
46	LAER	lowest achievable emission rate
47	L <sub>dn</sub>	day-night sound level average measured in dBA
48	L <sub>dnmr</sub>	monthly day-night sound level measured in dBA
49	L <sub>eq</sub>	equivalent sound level
50	L <sub>max</sub>	A-weighted maximum sound level
51	LOS	level of service
52	MACT	maximum achievable control technology
53	mg	millions of gallons
54	MGD	million gallons per day

1	mg/l	milligrams per liter
2	mg/m <sup>3</sup>	milligrams per cubic meter
3	MMCF/day	million cubic feet per day
4	MMH/day	megawatt hours per day
5	MOA	Military Operations Area
6	MORPC	Mid-Ohio Regional Planning Commission
7	MSDS	material safety data sheets
8	MSL	mean sea level
9	mt	metric tons
10	MTR	Military Training Route
11	MWH	megawatt hours per day
12	NAAQS	National Ambient Air Quality Standards
13	NCP	National Contingency Plan
14	NEPA	National Environmental Policy Act
15	NESHAP	National Emissions Standards for Hazardous Air Pollutants
16	NHPA	National Historic Preservation Act
17	NRHP	National Register of Historic Places
18	nm	nautical miles (approximately 1.15 statute miles)
19	NO	nitric oxide
20	N <sub>2</sub> O	nitrous oxide
21	N <sub>2</sub> O <sub>3</sub>	nitrous anhydride
22	N <sub>2</sub> O <sub>4</sub>	nitrogen tetroxide
23	N <sub>2</sub> O <sub>5</sub>	nitric anhydride
24	NO <sub>2</sub>	nitrogen dioxide
25	NO <sub>3</sub>	nitrogen trioxide
26	NO <sub>x</sub>	nitrogen oxides
27	NOI	Notice of Intent
28	NPDES	National Pollution Discharge Elimination System
29	NPL	National Priorities List
30	NRHP	National Register of Historic Places
31	O <sub>3</sub>	ozone
32	OAC	Ohio Administrative Code
33	ODOT	Ohio Department of Transportation
34	OEPA	Ohio Environmental Protection Agency
35	OL	Operating Location
36	ORC	Ohio Revised Code
37	OHPO	Ohio Historic Preservation Office
38	OSU	Ohio State University
39	OSHA	Occupational Safety and Health Administration
40	PAC	Planning Action Committee
41	PA/SI	Preliminary Assessment/Site Inspection
42	pCi/l	picocuries per liter
43	PCBs	polychlorinated biphenyls
44	PEL	Permissible Exposure Limit
45	pH	potential of hydrogen
46	P.L.	Public Law
47	PM <sub>10</sub>	particulate matter with aerodynamic diameter less than 10 microns
48	POL	petroleum, oil and lubricants
49	ppm	parts per million
50	PSD	Prevention of Significant Deterioration
51	RAMP	Radon Assessment and Mitigation Program
52	RAPAC	Rickenbacker Airport Planning Advisory Council
53	RCRA	Resource Conservation and Recovery Act
54	RD/RA	Remedial Design/Remedial Action



1	RI/FS	Remedial Investigation/Feasibility Study
2	RIMs II	Regional Interindustry Multiplier System
3	ROD	Record of Decision
4	ROI	region of influence
5	RPA	Rickenbacker Port Authority
6	RPZ	Runway Protection Zone
7	SAC	Strategic Air Command
8	SARA	Superfund Amendments and Reauthorization Act
9	SCS	Soil Conservation Service
10	SEL	Sound Exposure Level
11	SHPO	State Historic Preservation Officer
12	SIAS	Socioeconomic Impact Analysis Study
13	SIP	State Implementation Plan
14	SLAMS	State and Local Air Monitoring Stations
15	SO <sub>2</sub>	sulfur dioxide
16	SPCC	Spill Prevention Control and Countermeasure
17	SR	State Road
18	TAC	Tactical Air Command
19	TACAN	Tactical Air Navigation
20	TCE	trichloroethylene
21	TCMs	transportation control measures
22	TD	technology development
23	TFW/COS	121st Tactical Fighter Wing/Consolidated Operations Support
24	THC	total hydrocarbons
25	TIP	Transportation Improvement Program
26	TRACON	Terminal Radar Approach Control
27	TRSA	Terminal Radar Service Area
28	TSCA	Toxic Substances Control Act
29	TSDF	treatment, storage or disposal facility
30	TSP	total suspended particulate
31	TTLIC	Total Threshold Limit Concentration
32	UFC	Uniform Fire Code
33	µg/l	micrograms per liter
34	µg/m <sup>3</sup>	micrograms per cubic meter
35	USAF	United States Air Force
36	U.S.C.	U.S. Code
37	USDA	U.S. Department of Agriculture
38	U.S. DOT	U.S. Department of Transportation
39	U.S. EPA	U.S. Environmental Protection Agency
40	USFWS	U.S. Fish and Wildlife Service
41	USGS	U.S. Geological Survey
42	USTs	underground storage tanks
43	VFR	visual flight rules
44	VOCs	volatile organic compounds
45	VORDME	VHF omnirange/distance measuring equipment
46	VORTAC	VHF Omnidirectional Tactical Air Navigation
47	VSI	Visual Site Inspection
48	WPAFB	Wright-Patterson Air Force Base
49	317 TCW	317th Troop Carrier Wing
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## APPENDIX B

**APPENDIX B**  
**NOTICE OF INTENT**

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**NOTICE OF INTENT  
TO PREPARE ENVIRONMENTAL IMPACT STATEMENTS  
FOR DISPOSAL AND REUSE OF THIRTEEN AIR FORCE BASES**

The United States Air Force will prepare thirteen environmental impact statements (EISs) to assess the potential environmental impacts of disposal and reuse of the following Air Force bases recently directed to be closed under the provisions of the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510, Title XXIX):

**Closing Base**

Bergstrom AFB, Austin, Texas

Carswell AFB, Fort Worth, Texas

Castle AFB, Merced, California

Eaker AFB, Blytheville, Arkansas

England AFB, Alexandria, Louisiana

Grissom AFB, Peru, Indiana

Loring AFB, Limestone, Maine

Lowry AFB, Denver, Colorado

Myrtle Beach AFB, Myrtle Beach, South Carolina

Richards Gebaur ARS, Kansas City, Missouri

Rickenbacker ANGB, Columbus, Ohio

Williams AFB, Chandler, Arizona

Wurtsmith AFB, Oscoda, Michigan

Each EIS will address the disposal of the property to public or private entities and the potential impacts of reuse alternatives. All available property will be disposed of in accordance with provision of Public Law 101-510 and applicable federal property disposal regulations.

The Air Force plans to conduct a scoping and screening meeting within the local area for each base during October and November 1991. Notice of the time and place of each meeting will be made available to public officials and local news media outlets once it has been finalized. The purpose of each meeting is to determine the environmental issues and concerns to be analyzed for the base disposal and reuse in that area, to solicit comments on the proposed action and to solicit proposed disposal and reuse alternatives that should be addressed in the EIS for that base. In soliciting disposal and reuse inputs, the Air Force intends to consider all reasonable alternatives offered by any federal, state, or local government agency and any federally-sponsored or private entity or individual with an interest in acquiring available property at one of the listed closing bases. The resulting environmental impacts will

1 be considered in making disposal decisions to be documented in the Air Force's final disposal plan for  
2 each base.

3 To ensure the Air Force will have sufficient time to consider public inputs on issues to be included in the  
4 EISs, and disposal alternatives to be included in the final disposal plans, comments and reuse proposals  
5 should be forwarded to the address listed below by December 1, 1991. However, the Air Force will  
6 accept comments at the address below at any time during the environmental impact analysis process.

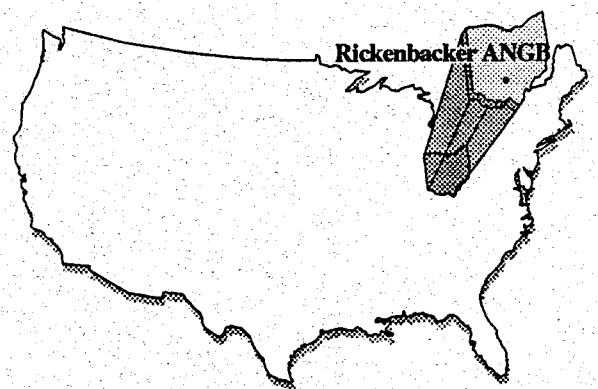
7 For further information concerning the study of these base disposal and reuse EIS activities, contact:

8 Lt. Colonel Tom Bartol  
9 AFCEE/ESE  
10 Norton AFB, California 92409-6448

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28 Note: Comment date was extended from December 1, 1991 to January 2, 1992 after processing and  
29 publication of this Notice of Intent.

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## APPENDIX C



**APPENDIX C**

**DRAFT ENVIRONMENTAL IMPACT STATEMENT MAILING LIST**

## APPENDIX C

### DRAFT ENVIRONMENTAL IMPACT STATEMENT MAILING LIST

This list of recipients includes interested federal, state, and local agencies and individuals who have expressed an interest in receiving the document. This list also includes the governor of Ohio, as well as United States senators and representatives and state legislators.

#### ELECTED OFFICIALS

##### Federal Officials

##### U.S. Senate

Honorable John Glenn  
United States Senator  
Federal Building  
200 N. High Street, Room 600  
Columbus, OH 43217

Honorable Howard Metzenbaum  
United States Senator  
Federal Building  
1240 E. Ninth Street  
Cleveland, OH 44199

##### U.S. House of Representatives

Honorable David L. Hobson  
Member, House of Representatives  
150 N. Limestone  
Room 220  
Springfield, OH 45501

Honorable John Kasich  
U.S. Congress  
200 N. High Street, Room 500  
Columbus, OH 43215

Honorable Deborah Pryce  
U.S. Congress  
200 N. High Street, Room 400  
Columbus, OH 43215

##### State of Ohio Officials

##### Governor

Honorable George Voinovich  
Governor, State of Ohio  
77 S. High Street, 30th Floor  
Columbus, OH 43266-0601

1  
2 Honorable Michael DeWine  
3 Lt. Governor, State of Ohio  
4 77 S. High Street, 30th Floor  
5 Columbus, OH 43266-0602  
6  
7 Honorable Robert Taft  
8 Secretary of State  
9 30 E. Broad Street  
10 14th Floor  
11 Columbus, OH 43266-0418  
12  
13 **State Senate**  
14 Honorable Stanley J. Aronoff  
15 Ohio State Senator  
16 Senate House  
17 Columbus, OH 43215  
18  
19 Honorable Theodore M. Gray  
20 Ohio State Senator  
21 Senate Building  
22 Columbus, OH 43266-0604  
23  
24 Honorable Robert Boggs  
25 Senate Minority Leader  
26 Senate Building  
27 Columbus, OH 43266-0604  
28  
29 Senator Richard Finan  
30 President Pro Tempore  
31 Ohio Senate  
32 Senate Building  
33 Columbus, OH 43266-0604  
34  
35 Honorable Eugene J. Watts  
36 Assistant President Pro Tempore  
37 Senate Building  
38 Columbus, OH 43266-0604  
39  
40 Senator Roy Ray  
41 Majority Whip  
42 Ohio Senate  
43 Senate Building  
44 Columbus, OH 43266-0604  
45  
46 Senator Alan Zaleski  
47 Assistant Minority Leader  
48 Ohio Senate  
49 Senate Building  
Columbus, OH 43266-0604

1  
2 Senator Ben Espy  
3 Minority Whip  
4 Ohio Senate  
5 Senate Building  
6 Columbus, OH 43266-0604  
7

8 Senator Robert Nettle  
9 Assistant Minority Whip  
10 Ohio Senate  
11 Senate Building  
12 Columbus, OH 43266-0604  
13

14 Senator Jan M. Long  
15 Ohio Senate  
16 Senate Building  
17 Columbus, OH 43266-0604  
18

19 Senator Bruce Johnson  
20 Ohio Senate  
21 Senate Building  
22 Columbus, OH 43266-0604

23 **State Legislature**

24 Honorable Vernal G. Riffe, Jr.  
25 Speaker of the Ohio House of Rep.  
26 77 S. High Street  
27 Columbus, OH 43266-0603

28 **State Assembly**

29 Honorable Jo Ann Davidson  
30 Minority Leader  
31 Ohio State Representative  
32 77 S. High Street  
33 Columbus, OH 43266-0603  
34

35 Honorable Mike Stinziano  
36 Ohio State Representative  
37 77 S. High Street  
38 Columbus, OH 43266-0603  
39

40 Honorable E.J. Thomas  
41 Ohio State Representative  
42 77 S. High Street  
43 Columbus, OH 43266-0603  
44

45 Honorable William L. Mallory  
46 Majority Floor Leader  
47 Ohio State Representative  
48 77 S. High Street  
49 Columbus, OH 43266-0603

1  
2 Honorable Marc D. Guthrie  
3 Assistant Majority Whip  
4 Ohio House of Representatives  
5 77 S. High Street  
6 Columbus, OH 43266-0603  
7  
8 Honorable William Batchelder  
9 Assistant Minority Leader  
10 Ohio House of Representatives  
11 77 S. High Street  
12 Columbus, OH 43266-0603  
13  
14 Honorable Randall Gardner  
15 Minority Whip  
16 Ohio House of Representatives  
17 77 S. High Street  
18 Columbus, OH 43266-0603  
19  
20 Honorable Tom Johnson  
21 Assistant Minority Whip  
22 Ohio House of Representatives  
23 77 So. High Street  
24 Columbus, OH 43266-0603  
25  
26 Honorable Michael C. Shoemaker  
27 Ohio House of Representatives  
28 77 S. High Street  
29 Columbus, OH 43266-0603  
30  
31 Honorable Barney Quiter  
32 Speaker Pro Tempore  
33 Ohio House of Representatives  
34 77 So. High Street  
35 Columbus, OH 43266-0603  
36  
37 Honorable Vern Sykes  
38 Assistant Majority Floor Leader  
39 Ohio House of Representatives  
40 77 So. High Street  
41 Columbus, OH 43266-0603  
42  
43 Honorable Jane Campbell  
44 Majority Whip  
45 Ohio House of Representatives  
46 77 So. High Street  
47 Columbus, OH 43266-0603  
48  
49 Honorable Corwin M. Nixon  
50 Minority Floor Leader  
51 State House  
52 Columbus, OH 43215

**Local Officials**

Honorable Dwight E. Scott  
Mayor, Village of Lockbourne  
P.O. Box 125  
Lockbourne, OH 43137

Honorable John A. Bishop  
Mayor of Whitehall  
360 S. Yearling Road  
Whitehall, OH 43213

Honorable J. Harold Carley  
Mayor of Groveport  
605 Cherry Street  
Groveport, OH 43125

The Honorable David A. Colley  
Mayor of Grandview Heights  
1016 Grandview Ave.  
Grandview Heights, OH 43212

Honorable Mark S. Froelich  
Mayor of Obetz  
1611 Chillicothe  
Obetz, OH 43207

Honorable Marsha Hall  
Mayor of Canal Winchester  
10 N. High Street  
Canal Winchester, OH 43110

Honorable Michael Logan  
Mayor of Circleville  
127 S. Court Street  
Circleville, OH 43133

Honorable Don S. Maddux  
Mayor of Lancaster  
104 E. Main Street  
Lancaster, OH 43130

Honorable David H. Madison  
Mayor of Bexley  
2242 E. Main Street  
Bexley, Oh 43209

Honorable W. Reed McClelland  
Mayor of Upper Arlington  
3600 Tremont Road  
Upper Arlington, OH 43221

Honorable James F. McGregor  
Mayor of Gahanna  
200 S. Hamilton Road  
Gahanna, OH 43230

1  
2 Honorable Bob McPherson  
3 Mayor of Reynoldsburg  
4 7232 E. Main Street  
5 Reynoldsburg, OH 43068  
6

7 Honorable Gregory A. Lashutka  
8 Mayor of Columbus  
9 90 W. Broad Street  
10 Columbus, OH 43215  
11

12 Honorable Richard Stage  
13 Mayor of Grove City  
14 P.O. Box 427  
15 Grove City, OH 43123  
16

17 Ronnie Welch, Chairman  
18 Madison Township Trustees  
19 2807 Route 674  
20 Canal Winchester, OH 43110  
21

22 David Brobst, Chairman  
23 Madison Township Trustees  
24 648 Main Street  
25 Groveport, OH 43125  
26

27 James Deal, Chairman  
28 Harrison Township Trustees  
29 3891 St. Paul Road  
30 Ashville, OH 43103  
31

32 Gary Hahn, Chairman  
33 Hamilton Township Trustees  
34 1671 Rohr Road, Route 3  
35 Lockbourne, OH 43137

36 **GOVERNMENT AGENCIES**

37 **Federal Agencies - National**

38 **Department of Defense**

39 Department of Defense (FM&P)  
40 Director, Office of Economic Adjustment  
41 The Pentagon  
42 Room 4C-767  
43 Washington, DC 20301

44 **National Offices of Federal Agencies**

45 Administrative Services & Property Management  
46 Office of the Secretary of Transportation  
47 Deputy Director  
48 400 Seventh Street, SW  
49 Room 10319 (M46)  
50 Washington, DC 20590  
51

1 Advisory Council on Historic Preservation  
2 Old Post Office Building  
3 1100 Pennsylvania Ave.  
4 Washington, DC 20004  
5

6 Bureau of Prisons  
7 Chief, Facilities Development & Operations  
8 320 First Street, NW  
9 Washington, DC 20534  
10

11 Center for Environmental Health & Injury Control  
12 Special Programs Group (F29)  
13 Centers for Disease Control  
14 1600 Clifton Road, NE  
15 Atlanta, GA 30333  
16

17 Council of Economic Advisors  
18 Old Executive Office Building  
19 Room 328  
20 Washington, DC 20500  
21

22 Department of Agriculture  
23 U.S. Forest Service  
24 Environmental Coordination Office  
25 P.O. Box 96090  
26 Room 4204  
27 Washington, DC 20090  
28

29 Department of Commerce  
30 Director, Office of Intergovernmental Affairs  
31 Commerce Building, Room 5222  
32 14th & Constitution Ave., NW  
33 Washington, DC 20230  
34

35 Department of Commerce  
36 Director, Economic Adjustment Division  
37 Economic Development Administration  
38 Commerce Building - Room 7800 B  
39 14th & Constitution Ave., NW  
40 Washington, DC 20230  
41

42 Department of Education  
43 Assistant to the Deputy Under Secretary for  
44 Intergovernmental & Interagency Affairs  
45 400 Maryland Ave., SW  
46 Room 3073  
47 Washington, DC 20202  
48

49 Department of Energy  
50 Division of Intergovernmental Affairs (CP-23)  
51 1000 Independence Ave., SW  
52 Room 7B-138  
53 Washington, DC 20585



1  
2 Department of Health & Human Services  
3 Office of Human Development Services  
4 200 Independence Ave., SW  
5 Room 324-F  
6 Washington, DC 20201  
7  
8 Department of Housing & Urban Development  
9 Director, Community Management Division (CPD)  
10 451 Seventh Street, SW  
11 Room 7100  
12 Washington, DC 20410  
13  
14 Department of Labor  
15 Intergovernmental Affairs  
16 200 Constitution Ave., NW  
17 Room 51325  
18 Washington, DC 20210  
19  
20 Department of Veterans Affairs  
21 810 Vermont Ave., NW  
22 Washington, DC 20420  
23  
24 Department of the Interior  
25 Director, Office of Environmental Affairs  
26 Main Interior Building, MS 2340  
27 1849 "C" Street, NW  
28 Washington, DC 20240  
29  
30 Farmers Home Administration  
31 Deputy Administrator for Program Operations  
32 14th & Independence Ave., SW  
33 Room 5022, S. Agriculture Building  
34 Washington, DC 20250  
35  
36 Federal Aviation Administration  
37 Director, Office of Environment and Energy  
38 800 Independence Avenue  
39 Room 939 FOB-10A  
40 Washington, DC 20591  
41  
42 Federal Emergency Management Administration  
43 500 "C" Street Room 828  
44 Washington, DC 20201  
45  
46 General Services Administration  
47 Assistant Commissioner  
48 Office of Real Estate Policy & Sales (FPRS)  
49 18th & "F" Streets, NW  
50 Room 4241  
51 Washington, DC 20405

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Small Business Administration  
Director, Office of Procurement  
Policy & Liaison  
409 3rd Street, SW, 8th Floor  
Washington, DC 20416

U.S. Environmental Protection Agency  
401 "M" Street, SW  
Washington, DC 20460

**Regional Offices of Federal Agencies**

Regional Administrator  
Environmental Protection Agency, Region V  
230 S. Dearborn Street  
J.C. Kluczynski Federal Building  
Chicago, IL 60604

Regional Director  
Federal Emergency Management Agency  
175 W. Jackson Blvd.  
Chicago, IL 60604

Regional Director  
Federal Trade Commission  
668 Euclid Avenue  
Cleveland, OH 44114

Regional Administrator  
General Services Administration  
230 S. Dearborn Street  
Chicago, IL 60604

National Transportation Safety Board  
Northeast Regional Office  
2001 Route 46  
Parsippany, NJ 07054

Regional Director  
US Department of Commerce  
Economic Development Administration  
175 W. Jackson Blvd.  
Insurance Exchange Building  
Chicago, IL 60604

Regional Director  
US Department of Commerce  
Minority Business Development Agency  
55 E. Monroe Street  
Chicago, IL 60603

US Department of Education  
Director, Region 5  
401 S. State Street  
Chicago, IL 60605-1202

1  
2 Regional Director  
3 US Department of Health and Human Services  
4 105 W. Adams Street  
5 Chicago, IL 60603  
6  
7 Regional Administrator  
8 US Department of Housing and Urban Development  
9 626 W. Jackson Blvd.  
10 Chicago, IL 60606-5601  
11  
12 Regional Administrator  
13 US Department of Transportation  
14 Federal Aviation Administration  
15 Great Lakes Region  
16 230 E. Devon Avenue  
17 Des Plaines, IL 60018  
18  
19 Regional Director  
20 US Department of Veteran Affairs  
21 536 S. Clark Street, Federal Building  
22 P.O. Box 8136  
23 Chicago, IL 60680

24 **State Agencies**

25 Agriculture Department  
26 Director  
27 65 S. Front Street  
28 Columbus, OH 43215  
29  
30 Air Quality Development Authority  
31 Executive Director  
32 50 W. Broad Street, Suite 1901  
33 Columbus, OH 43215  
34  
35 Building Authority  
36 Executive Director  
37 30 E. Broad Street, 40th Floor  
38 Columbus, OH 43215  
39  
40 Commerce Department  
41 Director  
42 77 S. High Street, 23rd Floor  
43 Columbus, OH 43266-0544  
44  
45 Community Development Division  
46 Director, Development Department  
47 77 S. High Street, Box 1001  
48 Columbus, OH 43266-0101  
49  
50 Department of Health  
51 Director  
52 246 N. High Street  
53 P.O. Box 118  
54 Columbus, OH 43211-0588

1  
2 Department of Commerce  
3 Director, Division of the State Fire Marshal  
4 889 E. Main Street  
5 Reynoldsburg, OH 43068  
6  
7 Development Department  
8 Director  
9 77 S. High Street, Box 1001  
10 Columbus, OH 43266-0101  
11  
12 Education Department  
13 Superintendent of Public Education  
14 65 S. Front Street  
15 Columbus, OH 43266-0308  
16  
17 Employment Services Bureau  
18 Administrator  
19 145 S. Front Street  
20 Columbus, OH 43216  
21  
22 Employment Services Section  
23 Chief  
24 145 S. Front Street  
25 Columbus, OH 43215  
26  
27 Donald Schregardns  
28 Director  
29 Environmental Protection Agency  
30 P.O. Box 1049  
31 1800 Watermark Drive  
32 Columbus, OH 43266-0149  
33  
34 Equal Employment Opportunity Division  
35 Deputy Director  
36 65 E. State Street, 8th Floor  
37 Columbus, OH 43266  
38  
39 Federal Relations Office  
40 Director, Education Department  
41 65 S. State Street, 8th Floor  
42 Columbus, OH 43266-0308  
43  
44 Governor's Office  
45 Communications Director  
46 77 S. High Street, 30th Floor  
47 Columbus, OH 43266-0601  
48  
49 Hazardous Waste Facility Board  
50 Acting Executive Director  
51 1800 Watermark  
52 Columbus, OH 43266-0149

1  
2 Highway Safety Department  
3 Director  
4 240 Parsons Avenue  
5 Columbus, OH 43266-0417  
6  
7 Housing Finance Agency  
8 Director  
9 77 S. High Street  
10 26th Floor  
11 Columbus, OH 43266-0319  
12  
13 Natural Resources Department  
14 Director  
15 Fountain Square  
16 Columbus, OH 43224  
17  
18 PUCO Public Affairs  
19 Director  
20 180 E. Broad Street  
21 Columbus, OH 43266  
22  
23 Public Facilities Commission  
24 Assistant Secretary  
25 30 E. Broad Street, 34th Floor  
26 Columbus, OH 43215  
27  
28 Public Utilities Commission  
29 Chairman  
30 180 E. Broad Street  
31 Columbus, OH 43266-0573  
32  
33 Public Works Division  
34 30 E. Broad Street, 35th Floor  
35 Columbus, OH 43215  
36  
37 Regulation  
38 8995 E. Main Street  
39 Columbus, OH 43215  
40  
41 State Highway Patrol Division  
42 Superintendent  
43 660 E. Main Street  
44 Columbus, OH 43205  
45  
46 Transportation Department  
47 Director  
48 25 S. Front Street  
49 Columbus, OH 43215  
50  
51 Water Development Authority  
52 50 W. Broad Street, Suite 1425  
53 Columbus, OH 43215

1  
2 Jerry Wray  
3 Director  
4 Ohio Department of Transportation  
5 25 S. Front Street  
6 Columbus, OH 43216-0899  
7  
8 Donald Jakeway  
9 Director  
10 Ohio Department of Development  
11 77 S. High Street, 29th Floor  
12 Columbus, OH 43266-0101  
13  
14 James D. Atkinson  
15 Assistant Regional Representative  
16 Ohio Department of Development  
17 77 South High Street, 29th Floor  
18 P.O. Box 1001  
19 Columbus, OH 43266-0101  
20 **County Agencies**  
21 County Administrator  
22 410 S. High Street  
23 Columbus, OH 43215  
24  
25 County Administrator  
26 County Courthouse  
27 Circleville, OH 43113  
28  
29 County Board of Commissioners  
30 President  
31 County Courthouse  
32 Lancaster, OH 43130  
33  
34 County Board of Commissioners  
35 President  
36 410 S. High Street  
37 Columbus, OH 43215  
38  
39 County Board of Commissioners  
40 President  
41 County Courthouse  
42 Circleville, OH 43114  
43  
44 Dorthy Teater, President  
45 Franklin County Commissioners  
46 373 S. High Street  
47 26th Floor  
48 Columbus, OH 43215  
49  
50 Franklin County Board of Health  
51 Environmental Health Division  
52 410 S. High Street  
53 Columbus, OH 43215  
54

1 Franklin County Soil and Water Conservation  
2 District Office  
3 1945 Frebis Avenue  
4 Columbus, OH 43207

5  
6 Pickaway County Board of Health  
7 Environmental Health Division  
8 110 Island Road  
9 Circleville, OH 43113

10  
11 Harley Evans, Chairman  
12 Pickaway County Commissioners  
13 Courthouse  
14 S. Court Street  
15 Circleville, OH 43113

16 **Local Government Agencies**

17 Mid-Ohio Regional Planning Commission  
18 Township Zoning Department  
19 285 East Main Street  
20 Columbus, OH 43215

21  
22 Rickenbacker Port Authority  
23 2365 Fred Haise Avenue  
24 Columbus, OH 43217

25  
26 Economic Development Administrator  
27 99 N. Front Street  
28 Columbus, OH 43215

29  
30 Planning Director  
31 99 N. Front Street  
32 Columbus, OH 43215

33  
34 City Council President  
35 104 E. Main Street  
36 Lancaster, OH 43130

37  
38 City of Columbus  
39 Public Utilities & Aviation Director  
40 910 Dublin Road  
41 Columbus, OH 43215

42  
43 John P. Kennedy  
44 Columbus City Council  
45 President  
46 90 W. Broad Street  
47 Columbus, OH 43125

48  
49 Groveport Village Council  
50 President  
51 605 Cherry Street  
52 Groveport, OH 43125

1  
2 Hamilton Township Board of Trustees  
3 6400 Lockbourne Road  
4 Columbus, OH 43207

5  
6 Harrison Township Board of Trustees  
7 2746 Weigand Road  
8 Ashville, OH 43103

9  
10 John C. McJunkin  
11 Lockbourne City Council  
12 President Pro-tem  
13 P.O. Box 127  
14 Lockbourne, OH 43137

15  
16 Madison Township Board of Trustees  
17 648 East Main Street  
18 Groveport, OH 43125

19  
20 Mr. James Barney  
21 Recreation and Parks Director  
22 9990 Riverside Drive  
23 Powell, OH 43065

24 **Libraries**

25 Columbus Metropolitan Main Library  
26 96 S. Grant Ave  
27 Columbus, OH 43215

28  
29 Southeast Branch Columbus Metropolitan Library  
30 4574 Winchester Pike  
31 Groveport, OH 43232

32 **OTHERS**

33 **Other Organizations/Individuals**

34 **National**

35 Advocates for the Public Interest  
36 1525 Eye Street, NW  
37 Suite 650  
38 Washington, DC 20005-1105

39  
40 American Operations Corporation  
41 Attn: Kristi Field  
42 1420 Spring Hill Road, Suite 3  
43 McLean, VA 22102

44  
45 Conservation Foundation  
46 1250 42nd Street, NW  
47 Washington, DC 20076



1  
2 Environmental Action Foundation  
3 Director  
4 6930 Carroll Ave., Suite 600  
5 Takoma Park, MD 20912  
6  
7 Environmental Defense Fund  
8 Executive Director  
9 1616 "P" Street, NW  
10 Washington, DC 20036  
11  
12 Environmental Policy Center/Institute  
13 1828 "L" Street, NW  
14 Washington, DC 20037  
15  
16 Friends of the Earth  
17 218 "D" Street, SE  
18 Washington, DC 20003  
19  
20 National Audubon Society  
21 666 Pennsylvania Ave., SE  
22 Washington, DC 20036-2266  
23  
24 National Wildlife Federation  
25 1400 16th Street, NW  
26 Washington, DC 20036-2266  
27  
28 Natural Resources Defense Council  
29 1350 New York Ave., NW  
30 Washington, DC 20006  
31  
32 Nature Conservancy  
33 1815 N. Lynn  
34 Arlington, VA 22209  
35  
36 Sierra Club  
37 404 "C" Street, NE  
38 Washington, DC 20003  
39  
40 The Wilderness Society  
41 900 17th Street, NW  
42 Washington, DC 20036  
43  
44 Local  
45  
46 Columbus Flight Watch  
47 6797 N. High Street, Suite 316  
48 Worthington, OH 43085  
49  
50 Action, Inc. Advisory Board  
51 111 Island Road (Rear)  
52 Circleville, OH 43113  
53  
54 William P. Allman  
1816 Devon Road  
Columbus, OH 43212

1  
2 Audubon Society  
3 1065 Kendale Road North  
4 Columbus, OH 43220  
5

6 James R. Fagan  
7 10441 Walnut Creek Pike  
8 Ashville, OH 43103-9532  
9

10 Carolyn Jeffers  
11 8745 Red Fox Lane  
12 Cincinnati, OH 45243  
13

14 Ohio Citizen's Action  
15 691 N. High Street  
16 Columbus, OH 43215  
17

18 Harold Peters  
19 9211 Ashville Pike  
20 Lockbourne, OH 43137  
21

22 Sierra Club Central Ohio  
23 145 North High Street  
24 Columbus, OH 43215  
25

26 John Storich  
27 Director of Ohio Department of Industrial Relations  
28 2323 W. 5th Avenue  
29 P.O. Box 825  
30 Columbus, OH 43216  
31

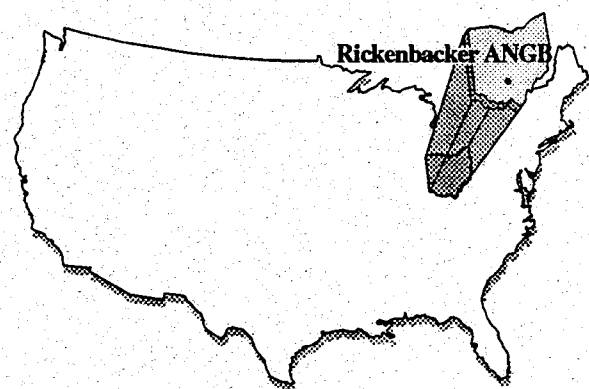
32 Honorable Lee Fisher  
33 Attorney General, State of Ohio  
34 30 E. Broad Street, 17th Floor  
35 Columbus, OH 43266-0410  
36

37 Lawrence Garrison  
38 Executive Director  
39 Rickenbacker Port Authority  
40 2365 Fred Halse Ave.  
41 Columbus, OH 43217-1232  
42

43 Ralph Smithers  
44 Executive Director  
45 Development Committee for Central Ohio  
46 37 N. High Street  
47 Columbus, OH 43215  
48

49 William Habig  
50 Executive Director  
51 Mid-Ohio Regional Planning Commission (MORPC)  
52 285 E. Main Street  
53 Columbus, OH 43215-5272

1  
2 Nancy S. Chiles  
3 Director, Ohio Department of Commerce  
4 77 S. High Street, 23rd Floor  
5 Columbus, OH 43266-0544  
6  
7 Terry A. Wallace  
8 Director, Ohio Department of Human Services  
9 30 E. Broad Street  
10 Columbus, OH 43266-0423  
11  
12 Frank D. Ray  
13 Director, Ohio Small Business Administration  
14 2 Nationwide Plaza, Suite 1400  
15 Columbus, OH 43215-2542  
16  
17 William Rittenhouse  
18 Executive Secretary Treasurer  
19 Columbus-Franklin County AFL/CIO  
20 2800 S. High Street  
21 Columbus, OH 43207  
22 **Business Groups - Base**  
23  
24 William Holley  
25 Columbus Area Chamber of Commerce  
26 37 N. High Street  
27 Columbus, OH 43215-3065  
28  
29 Robert Garvin  
30 Groveport Chamber of Commerce  
31 P.O. Box 125  
Groveport, OH 43125



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## APPENDIX D

**APPENDIX D**

**INSTALLATION RESTORATION PROGRAM BIBLIOGRAPHY**

## APPENDIX D

### INSTALLATION RESTORATION PROGRAM BIBLIOGRAPHY

The following documents were used in preparing the Site Investigation Report.

de Roche, J.T., and Ragem, A.C., 1984. Water Quality of a Stream/Aquifer System, Southern Franklin County, Ohio, U.S. Geological Survey Water Resources Investigation Report 84-4238, Columbus, Ohio.

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Engineering-Science, Inc., 1990. Draft Determination of Phase-Separated Hydrocarbon Extent at the Hazardous Waste Storage Area, October.

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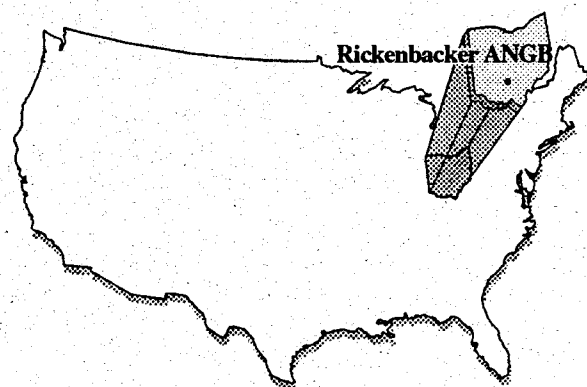
Hazardous Waste Remedial Action Program (HAZWRAP), 1988. Requirements for Quality Control of Analytical Data, Martin Marietta Energy Systems, Oak Ridge, Tennessee.

Hazardous Waste Remedial Action Program (HAZWRAP), 1992. Site Investigation Report, Martin Marietta Energy Systems, Oak Ridge, Tennessee.

Martin Marietta Energy Systems, Inc., 1987. Statement of Work for Site Inspection, Remedial Investigation, Feasibility Study, and Remedial Design at Rickenbacker Air National Guard Base, Columbus, Ohio, August.

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## APPENDIX E



**APPENDIX E**  
**METHODS OF ANALYSIS**

# APPENDIX E

## METHODS OF ANALYSIS

### 1.0 INTRODUCTION

This section describes the methods used in preparing this environmental impact statement (EIS). These methods were designed and implemented to evaluate the potential environmental impacts of disposal of portions of Rickenbacker Air National Guard Base (Rickenbacker ANGB) and incident reuse. Since future reuse of the site is uncertain in its scope, activities, and timing, the analysis considered several alternative reuse scenarios and evaluated their associated environmental impacts. The reuse scenarios analyzed in this EIS were defined for this study to span the anticipated range of reuse activities that are reasonably likely to occur due to disposal of portions of the base. They were developed based on proposals put forth by affected local communities, interested individuals, and the Air Force, and considered general land use planning objectives.

The various analysis methods used to develop this EIS are summarized here by resource. In some instances, more detail is included in another appendix. These instances are noted for each resource in its respective subsection below.

### 2.0 LOCAL COMMUNITY

#### 2.1 Community Setting

The section on community setting was developed to provide the context within which other biophysical impacts could be assessed. Community setting impacts were based on projected direct and secondary employment and resulting population changes related to reuse of Rickenbacker ANGB. These projections were used to quantify and evaluate changes in demand on community services, demand on transportation systems, air quality, and noise. A complete assessment of socioeconomic effects was conducted through a separate Socioeconomic Impact Analysis Study (SIAS) for the Disposal and Reuse of Rickenbacker ANGB, which is the source for baseline and projected statistics used in this EIS.

The SIAS used information from sources including the U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics and the U.S. Council of Economic Advisors. The analysis used the Regional Interindustry Multiplier System (RIMS II) model to generate demographic and economic projections associated with the projections associated with the Proposed Action and alternatives.

#### 2.2 LAND USE AND AESTHETICS

Potential land use impacts were projected based on compatibility of land uses associated with the Proposed Action and alternatives with adjacent land uses and zoning; consistency with general plans and other land use plans,

1 regulations, regional plans and policies; and effects of aircraft noise and safety  
2 restrictions on land use.

3 The region of influence (ROI) for the majority of direct land use impacts for this  
4 study consisted of Rickenbacker ANGB, the city of Columbus, the villages of  
5 Groveport, Lockbourne and Canal Winchester surrounding the base, and  
6 unincorporated parcels of Franklin and Pickaway counties interspersed among  
7 those villages. Noise-related land use impacts were determined by the extent of  
8 noise contours created by reuse alternative and potentially included the villages  
9 of Lockbourne, Groveport and Canal Winchester and portions of Harrison,  
10 Scioto and Madison townships.

11 Maps and windshield surveys were used to characterize on- and off-base land  
12 uses. Applicable policies, regulations, and land use restrictions were identified  
13 from the land use plans and ordinances of municipalities in the ROI. The  
14 alternatives were compared to existing land use and zoning to identify areas of  
15 conflict, as well as to local planning goals and objectives as set forth in  
16 community General Plans. The other land use concepts were also examined for  
17 compatibility with adjacent land uses and with the Proposed Action and  
18 alternatives using the same process.

19 Land uses were examined for consistency with the Federal Aviation  
20 Administration (FAA) regulations and recommended land uses in the vicinity of  
21 airfields. Impacts of airfield-generated noise were assessed by comparing the  
22 extent of noise-affected areas and receptors under different reuse alternatives  
23 against pre-realignment baseline conditions.

24 For the aesthetics analysis, the affected environment was described based upon  
25 the visual sensitivity of areas within and visible from the base. These areas  
26 were categorized as high, medium, and low sensitivity. The Proposed Action  
27 and alternatives were then evaluated to identify land uses to be developed,  
28 visual modifications that would occur, and new areas of visual sensitivity, and  
29 determine whether modification of unique or otherwise irreplaceable visual  
30 resources would occur and detract from the visual qualities or setting.  
31 Consistency with applicable plans that protect visual resources was also  
32 examined.

### 33 2.3 TRANSPORTATION

34 Potential impacts to transportation due to the Proposed Action and alternative  
35 reuse plans for Rickenbacker ANGB focus on key roads, local airport use, and  
36 passenger rail service in the area, including those segments of the transportation  
37 networks in the region that serve as direct or mandatory indirect linkages to the  
38 base, and those that are commonly used by Rickenbacker ANGB personnel.  
39 The need for improvements to on-base roads, off-base access, and regional  
40 arterial was considered. The analysis was derived using information from state  
41 and local government. Other data sources used for the road way analysis  
42 include the Institute of Transportation Engineers and the Transportation

1 Research Board. The ROI for the transportation analysis includes the southern  
2 Columbus region with emphasis on the area surrounding Rickenbacker ANGB.

3 The number of vehicle trips expected as a result of specific land uses on the site  
4 was estimated for the years 1994, 1999, 2004 and 2014 on the basis of direct  
5 onsite jobs and other attributes of onsite land uses (such as the number of  
6 dwelling units, projected airport passenger volume, commercial and industrial  
7 development, and other factors). Trip Generation Data from the Institute of  
8 Transportation Engineers was used to determine vehicle trips. Vehicle trips  
9 were then allocated to the local road network using prior patterns and expected  
10 destinations and sources of trips. When appropriate, the local road network was  
11 adjusted to account for changes over time from presently planned road capacity  
12 improvements and improvements required by the proposed reuse scenarios.  
13 Changes in work and associated travel patterns were derived by assigning or  
14 removing traffic to or from the most direct commuting routes. Freeway- bound  
15 traffic was determined as a percentage of total trips, then distributed to key  
16 regional roads based on trip length distribution. Changes in traffic volumes  
17 arising from reuse alternatives at Rickenbacker ANGB were estimated and  
18 resulting volume changes on key local, regional, and on-base roadway segments  
19 were then determined.

20 The transportation network, in the ROI was then examined to identify potential  
21 impacts to Levels of Service (LOS) arising from future baseline conditions and  
22 effects of reuse alternatives. Planning computations from the Highway Capacity  
23 Manual were used to determine a given level of service. The planning  
24 application provided estimates of traffic and anticipated levels of service where  
25 the amount of detail and accuracy of information were limited. The planning  
26 procedures used in this analysis were based on forecasts of average annual  
27 daily traffic and on assumed traffic, roadway, and control conditions. The results  
28 provided a basic assessment of whether or not capacity was likely to be  
29 exceeded for a given volume. Intersection analysis was then integrated into the  
30 planning capacity analysis for each roadway section analyzed and the results  
31 provided an estimate of the changes in LOS rating expected as a result of traffic  
32 volume changes on key local, regional, and on-base roadway segments.

33 Airspace use in the vicinity of an airport is driven primarily by such factors as  
34 runway alignment, surrounding obstacles and terrain, air traffic control and  
35 navigational aid capabilities, proximity of other airports/airspace uses in the  
36 area, and noise considerations. These same factors normally apply regardless  
37 of whether the airport is used for military or civil aircraft operations. For this  
38 reason, a pre-realignment reference was used in characterizing these factors  
39 related to airspace use at Rickenbacker ANGB.

40 Historic data on military aircraft operations used to characterize airspace use at  
41 and around Rickenbacker ANGB were obtained from the base and Ohio Air  
42 Traffic Control Managers. Port Columbus Airport Authority and airport  
43 owners/operators were contacted to obtain information on civil airport use.  
44 Aviation forecasts were derived from the reuse plans and Port Columbus Airport

Authority studies, and where necessary, assumptions were made based on other similar airport operational environments.

The ROI for the airspace analysis is an area extending from the surface up to 10,000 feet mean sea level (MSL) and has been specifically delegated to the Terminal Radar Approach Control (TRACON) facility at Columbus for the control of all air traffic within this area. This airspace area is within the control jurisdiction of the FAA TRACON facility at Columbus. Effects on airspace controlled by the Columbus TRACON, including airspace above 10,000 MSL, were addressed in a general sense.

The types and levels of aircraft operations projected for the Proposed Action and alternatives were evaluated and compared to the way airspace was configured and used under the pre-realignment reference. The capacity of the airport to accommodate the projected aircraft fleet and operations was assessed by calculating the airport service volume, using the criteria in the FAA Advisory Circular 150/5060-5. Potential effects on airspace use were assessed, based on the extent to which projected operations could (1) require modifications to the airspace structure or air traffic control systems and/or facilities; (2) restrict, limit, or otherwise delay other air traffic in the region; or (3) encroach on other airspace areas and uses. It was recognized throughout the analysis process that a more in-depth study would be conducted by the FAA, once a reuse plan is selected, to identify any impacts of the reuse activities and what actions would be required to support the projected aircraft operations. Therefore, this analysis was used only to consider the level of operations that could likely be accommodated under the existing airspace structure, and to identify potential impacts if operational capacities were exceeded.

Data addressing private, passenger, and cargo air service in the region were acquired directly from representatives of airports serving the area and air transportation studies of the area. The effect of base realignment on local airports was derived by subtracting current base-related enplanements from current total enplanements. For each reuse alternative, impacts on air transportation were determined by multiplying the ratio of enplanements to population by the projected future populations of the local airport service areas.

Information regarding existing rail transportation was obtained from Amtrak. Projected effects of reuse alternatives on railroad transportation were based on projected populations, using current passenger to population ratios. Population figures were used since none of the alternatives assumes direct use of local railroads.

## **2.4 UTILITIES**

Utility usage was determined based on land uses and projected area population increases. The utility systems addressed in this analysis include the facilities and infrastructure used for potable water (pumping, treatment, storage, and distribution), wastewater (collection and treatment), solid waste (collection and disposal), and energy generation and distribution (electricity and natural gas).

1 Historic consumption data, service curtailment data, peak demand  
2 characteristics, storage and distribution capacities, and related information for  
3 base utilities (including projections of future utility demand for each utility  
4 provider's particular service area) were extracted from various engineering  
5 reports and from Rickenbacker ANGB personnel. Information was also obtained  
6 from public and private utility purveyors and related county and city agencies.

7 The ROI for this analysis comprised the service areas of the local purveyors of  
8 potable water, wastewater treatment, and energy that serve Rickenbacker ANGB  
9 and the surrounding area. It was assumed that these local purveyors would  
10 provide services within the area of the existing base after disposal/reuse.

11 Potential impacts were evaluated based on long-term projections of demand and  
12 population obtained from the various utility purveyors within the region (through  
13 the year 2014) for each of their respective service areas. In each case,  
14 purveyors provided the most recent comprehensive projections that were either  
15 made prior to the base realignment announcement or that did not take into  
16 account a change in demand from the base. These projections were then  
17 adjusted to reflect the decrease in demand associated with realignment of  
18 Rickenbacker ANGB and its subsequent operation under caretaker status.  
19 These adjusted forecasts were then considered the future baseline for  
20 comparison with potential reuse alternatives.

21 The potential effects of reuse alternatives were evaluated by estimating and  
22 comparing the additional direct and indirect demand associated with each  
23 alternative to the existing and projected operating capabilities of each utility  
24 system. Estimates of direct utility demands on site were used to identify the  
25 effects of the reuse activities on site-related utility systems. All changes to the  
26 utility purveyors' long-term forecasts were based on estimated project-related  
27 population changes in the region and the future rates of per capita demand  
28 explicitly indicated by each purveyor's projections or derived from those  
29 projections. It was assumed that the regional per capita demand rates were  
30 representative of the reuse activities, based on assumed similarities between  
31 proposed land uses and existing or projected uses in the region. Projections in  
32 the utilities analysis include direct demand associated with activities planned on  
33 base property, as well as resulting changes in domestic demand associated with  
34 population changes in the region.

### 35 3.0 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

36 Two categories of hazardous materials and hazardous waste management  
37 issues were addressed for this analysis: (1) impacts of hazardous materials  
38 utilized and hazardous wastes generated by each reuse proposal and (2)  
39 residual impacts associated with past Air Force practices including delays due to  
40 Installation Restoration Program (IRP) site remediation. IRP sites were  
41 identified as part of the affected environment (Chapter 3), while remediation  
42 impacts associated with these sites were addressed as environmental  
43 consequences (Chapter 4). Impacts of wastes generated by each reuse  
44 proposal were also addressed in Chapter 4. Primary sources of data were

existing published reports such as IRP documents, management plans for various toxic or hazardous substances (e.g., spill response, hazardous waste, asbestos), and survey results (e.g., radon). Pertinent federal, state, and local regulations and standards were reviewed for applicability to the Proposed Action and alternatives. Hazardous materials and waste management plans and inventories were obtained from Rickenbacker ANGB. Interviews with personnel associated with these on-base agencies provided the information necessary to fill any data gaps. City and county agencies were also contacted regarding regulations which would apply to both current and post-realignment activities for Rickenbacker ANGB.

The ROI includes the current base property and all geographical areas that have been affected by an on-base release of a hazardous material or hazardous waste. The IRP sites are located within the base boundary.

Pre-realignment baseline conditions as defined for this study include current hazardous materials/waste management practices and inventories pertaining to the following areas: hazardous materials, hazardous waste, IRP sites, aboveground and underground storage tanks, asbestos, pesticides, polychlorinated biphenyls (PCBs), radon, and medical/biohazardous waste. The impact analysis considered (1) the amount and type of hazardous materials/waste currently associated with specific facilities and/or areas proposed under each reuse alternative; (2) the regulatory requirements or restrictions associated with property transfer and reuse; (3) delays to development due to IRP remediation activities; and (4) remediation schedules of specific hazardous materials/waste (e.g., PCBs, medical/biohazardous waste) currently used by the Air Force.

#### 4.0 NATURAL ENVIRONMENT

##### 4.1 SOILS AND GEOLOGY

Evaluation of soils impacts addressed erosion potential, construction-related dust generation and other soils problems (low soil strength, expansive soils, etc.), and disturbance of unique soil types. Information was obtained from several federal, state, and local agencies. Assessment of potential impacts to geology from the reuse alternatives included evaluation of resource potential (especially aggregates), geologic hazards (particularly potential for seismicity, liquefaction, and subsidence), and flooding potential.

The soils analysis was based on a review of Soil Conservation Service (SCS) documents for soil properties. The soils in the ROI were then evaluated for erosion potential, permeability, evidence of hardpans, expansive soil characteristics, etc., as these relate to construction problems and erosion potential during construction. Mitigations were evaluated based on county ordinances and SCS recommendations. Common engineering practices were reviewed to determine poor soil characteristics and recommended mitigation measures.

1 The ROI for the geologic analysis included the region surrounding Rickenbacker  
2 ANGB relative to seismic activity, aggregate resources, and flooding potential.  
3 The ROI for the soils analysis was limited to the base and specific areas  
4 designated for construction or renovation.

5 The geologic analysis was based on a review of existing literature for  
6 construction problems associated with geologic hazards availability of  
7 construction aggregate, and whether reuse would impact the availability of  
8 known mineral resources.

#### 9 4.2 WATER RESOURCES

10 Analysis of impacts of the reuse alternatives on water resources considered  
11 groundwater quality and quantity, surface water quality (effects from erosion or  
12 sedimentation and contamination), surface water drainage diversion, and non-  
13 point source surface runoff to the Walnut and Big Walnut creeks. Impacts to  
14 water quality resources resulting from IRP activities were addressed under  
15 Hazardous Materials and Waste Management. Information was obtained from  
16 several federal, state, and local agencies. . The ROI for water resources, both  
17 surface water and groundwater includes the surface area encompassed by  
18 Rickenbacker ANGB and the vicinity watersheds and underlying aquifers.  
19 Coastal areas and wild and scenic rivers are absent from the ROI.

20 Existing surface water conditions were evaluated for flood potential, non-point  
21 source discharge or transportation of contaminants, and surface water quality.  
22 Groundwater resources were evaluated as they pertained to adequate water  
23 supplies for each of the reuse alternatives. Groundwater quality and the  
24 potential as a potable water source for each reuse alternative was documented.  
25 The existing storm water drainage system was evaluated based on available  
26 literature, and the impacts to this system from each of the reuse alternatives  
27 were determined.

#### 28 4.3 AIR QUALITY

29 The air quality resource is defined as the condition of the atmosphere, expressed  
30 in terms of the concentrations of air pollutants occurring in an area as the result  
31 of emissions from natural and/or man-made sources. Reuse alternatives have  
32 the potential to affect air quality depending on net changes in the release of both  
33 gaseous and particulate matter emissions. The impact significance of these  
34 emission changes were determined by comparing the resulting atmospheric  
35 concentrations to state and federal ambient air quality standards. This analysis  
36 drew from climatological data, air quality monitoring data, baseline emission  
37 inventory information, construction scheduling information, reuse-related source  
38 information, and transportation data. Principal sources of these data were the  
39 Ohio EPA, the Rickenbacker ANGB environmental coordinator, and the base  
40 civil engineer.

41 The ROI was determined by emissions from sources associated with  
42 construction and operation of the reuse alternatives. For inert pollutant



1 emissions (all pollutants other than ozone and its precursors), the measurable  
2 ROI is limited to a few miles downwind from the source, (i.e., the immediate  
3 area of Rickenbacker ANGB). The ROI for ozone impacts from project  
4 emissions included all of Franklin County.

5 Emissions predicted to result from the proposed alternatives were compared to  
6 existing baseline emissions to determine the potential for adverse air quality  
7 impact. Impacts were also assessed by modeling, where appropriate, and  
8 compared to air quality standards and attainment levels for complying with these  
9 standards. Appendix I contains the projected emissions inventory information  
10 and methods. Background concentrations were added to the project impacts for  
11 comparison with the standards and attainment levels. Impacts were considered  
12 significant if project emissions would (1) increase an off-site ambient pollutant  
13 concentration from below to avoid a federal, state, or local standard; (2)  
14 contribute a measurable amount to an existing or projected air quality standard  
15 exceedance; (3) be inconsistent with measures contained in the air quality  
16 attainment plans of the Ohio EPA; or (4) expose sensitive receptors (such as  
17 schools or hospitals) to substantial pollutant concentrations. All other air quality  
18 impacts were considered insignificant.

19 General analytic methods used in the air quality analysis are described further in  
20 Appendix I.

#### 21 4.4 NOISE

22 The noise analysis addressed potential noise impacts from reuse-generated  
23 aircraft operations, surface traffic, and other identified noise sources on  
24 communities surrounding Rickenbacker ANGB. Most of the data were obtained  
25 from the aircraft operations and traffic data prepared for the reuse alternatives.  
26 Day-night levels (DNL) were used to determine noise impacts. A single-event  
27 noise analysis using sound exposure levels (SEL) was also performed.  
28 Scientific literature on noise effects was also referenced.

29 The ROI for noise was defined as the area within DNL 65 decibels (dB) contours  
30 based on land use compatibility guidelines developed from FAA regulations  
31 (Federal Aviation Administration, 1989). The ROI for surface traffic noise  
32 impacts incorporated key road segments identified in the Transportation  
33 Analysis.

34 Noise levels from aircraft operations were estimated using the FAA-approved  
35 Noise Exposure Model (NOISEMAP), version 6.0. Noise contours for DNL 65  
36 dB and above were depicted. Potential noise impacts were identified by  
37 overlaying the noise contours with land use and population information to  
38 determine the number of residents who would be exposed to DNL above 65 dB.

39 SELs related to reuse alternatives were provided for representative noise  
40 sensitive receptors exposed to aircraft noise from the Rickenbacker ANGB  
41 airfield. The SELs presented were outdoor levels and took into account the

1 location of the receptors relative to the various flight tracks and aircraft profiles  
2 used.

3 Noise reduction effects for common construction were included in the sleep  
4 interference analysis; however, evaluation of sensitive receptors relative to noise  
5 reduction levels of specific structures was not performed.

6 Methods used to analyze noise impacts under each reuse scenario are  
7 presented in detail in Appendix H of this EIS.

#### 8 4.5 BIOLOGICAL RESOURCES

9 Biological resources addressed in relation to disposal and reuse of portions of  
10 Rickenbacker ANGB included vegetation, wildlife, threatened and endangered  
11 species, and sensitive habitats (e.g., wetlands). Primary data sources for the  
12 analysis included published literature and reports, the Ohio Natural Heritage  
13 Database, field reconnaissance of the base, and contacts with agencies such as  
14 the U.S. Fish and Wildlife Service and the Ohio Department of Fish and Game.  
15 The ROI for the biological resources assessment comprised Rickenbacker  
16 ANGB itself, other areas directly affected by reuse alternatives, and an area  
17 extending approximately five miles around the base property.

18 Vegetation and sensitive biological resources (e.g., wetlands and protected  
19 species) on the base were mapped using aerial photographs and field  
20 observations obtained during a reconnaissance survey of the base on 11 July  
21 1991 to ground truth the photos. Wetlands on the base were delineated using  
22 the methods set forth in the "Federal Manual for Identifying and Delineating  
23 Jurisdictional Wetlands" (Federal Interagency Committee for Wetland  
24 Delineation, 1989). The resulting maps were entered into the computerized  
25 geographical information system (GIS).

26 The impact analysis was performed by overlaying project land use maps for  
27 each alternative onto the biological resource maps using the GIS to calculate the  
28 overlap by land use. The computer output (figures and tabular data) was then  
29 combined with percent development factors within the 20-year study period and  
30 type of development proposed (e.g., new construction or reuse of existing  
31 facilities) for each land use to estimate the amount of habitat that could be  
32 affected. The proportion of disturbance associated with each land use category  
33 was determined based on accepted land use planning concepts. It was assumed  
34 that disturbance could occur at one or more sites within the land use polygon,  
35 unless designated as vacant land on the project maps. Disturbance of each  
36 habitat type present was considered to be in direct proportion to the  
37 development factor. These impacts were further divided into three development  
38 phases by visually comparing maps showing the proposed schedule of  
39 development with the resource maps. All other impacts were qualitatively  
40 assessed based on literature data and scientific expertise on the responses of  
41 plants and animals to project-related disturbances such as noise, landscaping,  
42 and vegetation maintenance.

#### 4.6 CULTURAL RESOURCES

Cultural resources generally include three main categories: prehistoric resources, historic structures and resources, and traditional resources. For the purposes of this EIS, cultural resources were defined to also include paleontological resources, the fossil evidence of past plant and animal life. Prehistoric resources are places where human activity has measurably altered the earth or left deposits of physical remains. Historic structures and resources include standing structures and other physical remains of historic significance. Traditional resources are topographical areas, features, habitats, plants, animals, minerals, or archaeological sites that contemporary Native Americans or other groups value presently, or did so in the past, and consider essential for the persistence of their traditional culture. Cultural resources of particular concern include properties listed on the National Register of Historic Places (NRHP), properties potentially eligible for the NRHP, and sacred Native American sites and areas.

Data used to compile information on these resources were obtained from existing environmental documents; material on file at Rickenbacker ANGB; recent cultural resource reports pertaining to the base; interviews with individuals familiar with the history, archaeology, or paleontology of the Columbus area; and records of the Ohio Archaeological Inventory. The ROI for cultural resources includes all areas within the boundaries of Rickenbacker ANGB. No off-base areas were included except where ground-disturbing activities (such as road widening) have been incorporated into potential reuse plans.

The EIS contains the most up-to-date information on the importance of cultural resources on Rickenbacker ANGB, based on recent and ongoing evaluation of eligibility for the NRHP. Cultural resources for which eligibility information was unavailable were assumed to be eligible for the National Register, as is stipulated in the NHPA.

According to National Register criteria (36 CFR 60.4), the quality of significance is present in districts, sites, buildings, structures, and objects that:

- a) are associated with events that have made a significant contribution to the broad patterns of history,
- b) are associated with the lives of persons significant in the past,
- c) embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguishable entity whose components may lack individual distinction, and
- d) have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in or considered eligible for listing in the National Register, a cultural resource must meet at least one of the above criteria and must also possess integrity of location, design, setting, materials, workmanship feeling, and

1 association. Integrity is defined as the authenticity of a property's historic  
2 identify, as evidenced by the survival of physical characteristics that existed  
3 during the property's historic or prehistoric occupation or use. If a resource  
4 retains the physical characteristics it possessed in the past, it has the capacity to  
5 convey information about a culture or people, historical patterns, or architectural  
6 or engineering design and technology.

7 Compliance with requirements of cultural resource laws and regulations ideally  
8 involves four basic steps: (1) identification of significant cultural resources that  
9 could be affected by the Proposed Action or its alternatives, (2) assessment of  
10 the impacts or effects of these actions, (3) determination of significance of  
11 potential historic properties within the ROI, and (4) development and  
12 implementation of measures to eliminate or reduce adverse impacts. The  
13 primary law governing cultural resources in terms of their treatment in an  
14 environmental analysis is the NHPA, which addresses the protection of  
15 archaeological, historic, and Native American resources. In compliance with the  
16 NHPA, the Air Force is in the process of consultation with the SHPO, as required  
17 under Sections 106 and 111 of the Act.

18 Adverse effects that may occur as a result of base reuse are those that have a  
19 negative impact on characteristics that make a resource eligible for listing on the  
20 NRHP. Actions that can diminish the integrity, research potential, or other  
21 important characteristics of an historic property include the following (36 CFR  
22 800.9):

- 23 • physical destruction, damage, or alteration of all or part of the  
24 property,
- 25 • isolating the property from its setting or altering the character of the  
26 property's setting when that character contributes to the property's  
27 qualification for the National Register,
- 28 • introduction of visual or auditory elements that are out of character  
29 with the property or that alter its setting,
- 30 • transfer or sale of a federally owned property without adequate  
31 conditions or restrictions regarding its preservation, maintenance, or  
32 use, or
- 33 • neglect of a property, resulting in its deterioration or destruction.

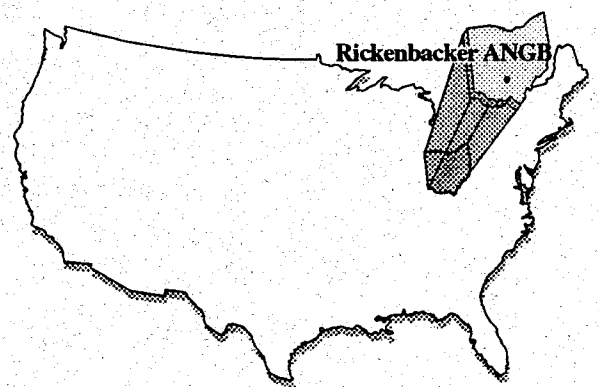
34 Regulations for implementing Section 106 of the NHPA indicate that the transfer,  
35 conveyance, lease, or sale of an historic property are procedurally considered to  
36 be adverse effects, thereby ensuring full regulatory consideration in federal  
37 project planning and execution. However, effects of a project that would  
38 otherwise be found to be adverse may not be considered adverse if one of the  
39 following conditions exists:

- 40 • When the historic property is of value only for its potential  
41 contribution to archaeological, historical, or architectural research,  
42 and when such value can be substantially preserved through the

1                   conduct of appropriate research, and such research is conducted in  
2                   accordance with applicable professional standards and guidelines.

- 3                   • When the undertaking is limited to the rehabilitation of buildings and  
4                   structures and is conducted in a manner that preserves the historical  
5                   and architectural value of the affected historic property through  
6                   conformance with the Secretary's Standards for Rehabilitation and  
7                   Guidelines for Rehabilitation of Historic Buildings.
- 8                   • When the undertaking is limited to the transfer, conveyance, lease,  
9                   or sale of a historic property, and adequate restrictions or conditions  
10                  are included to ensure preservation of the property's significant  
11                  historic features.

12                  The treatment of paleontological resources is governed by Public Law 74-292  
13                  (the National Natural Landmarks Program, implemented by 36 CFR 62). Only  
14                  paleontological remains determined to be significant are subject to consideration  
15                  and protection by a federal agency. Among the criteria used for National Natural  
16                  Landmark designation are illustrative character, present condition, diversity,  
17                  rarity, and value for science and education.

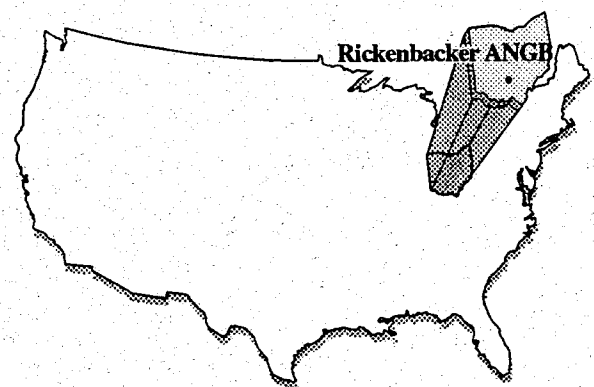


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## APPENDIX F

## **APPENDIX F**

### **PERMITS**



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## APPENDIX G



**APPENDIX G**

**AIR FORCE POLICY, MANAGEMENT OF ASBESTOS AT CLOSING BASES**

## **AIR FORCE POLICY FOR MANAGEMENT OF ASBESTOS CONTAINING MATERIAL (ACM) AT CLOSURE BASES**

This policy applies specifically to property being disposed of through the Base Realignment and Closure (BRAC) process and supersedes all previous policy on this matter.

### **1. REFERENCES**

- a. Asbestos Hazard Emergency Response Act (AHERA).
- b. Federal Tort Claims Act, 28 U.S.C. § 2671.
- c. 40 CFR Part 61, Subpart M - National Emission Standards for Hazardous Air Pollutants (NESHAPS).
- d. 29 CFR Section 1910.1001 - Occupational Safety and Health Administration (OSHA) general industry standard for asbestos.
- e. 29 CFR Section 1926.58 - Occupational Safety and Health Administration (OSHA) construction industry standard for asbestos.
- f. 40 CFR Part 302 - Designation, Reportable Quantities, and Notification.
- g. 41 CFR Section 101-47.304-13 - Federal Property Management Regulations provisions relating to asbestos.
- h. AFI 32-1052, Facility Asbestos Management.
- i. AFI 32-7066, Environmental Baseline Surveys in Real Estate Transactions.

### **2. DEFINITIONS**

- a. **Asbestos** - A group of naturally occurring minerals that separate into fibers, including chrysotile, amosite, crocidolite, asbestiform anthophyllite, asbestiform tremolite, and asbestiform actinolite.
- b. **ACM - Asbestos-containing Material**. Any material containing more than one percent asbestos.
- c. **Accredited Asbestos Professional** - Air Force Bioenvironmental Engineer or any other professional who is accredited through EPA's asbestos model accreditation plan or other equivalent method.

### 3. POLICY

The Air Force will ensure that at the time any property is conveyed, leased, or otherwise disposed of through the Base Realignment and Closure (BRAC) process, it does not pose a threat to human health due to ACM and that the property complies with all applicable statutes and regulations regarding ACM.

#### a. Responsibilities.

(1) The Air Force Base Conversion Agency (AFBCA) conducts and funds, from BRAC accounts, any asbestos surveys and remediation needed solely for base closure; to include, but not limited to, additional asbestos surveys for environmental baseline surveys, asbestos repair or resurvey of vacated buildings.

(2) The MAJCOM's conduct and fund asbestos surveys and remediation needed to properly manage asbestos hazards, in accordance with current policy guidelines, up to the time of property management responsibility transfer to AFBCA.

b. **Surveys for ACM.** A survey of facilities for ACM will be accomplished or updated within the 6 months prior to the initial transfer; whether by lease, sale or other disposal method. Surveys will, at a minimum, identify the extent of asbestos contained in facilities and the exposure hazards. Surveys will be accomplished under the supervision of an accredited asbestos professional. These surveys will minimally include the following:

(1) A review of facility records.

(2) A visual inspection.

(3) An intrusive inspection, as directed by an accredited asbestos professional.

(4) Ambient air sampling, if directed by an accredited asbestos professional, in order to determine if any appropriate remedial actions are needed prior to the property being leased or transferred, or to protect facility occupants.

c. **Remediation of ACM.** Remediation of ACM in facilities at closure bases will be in accordance with applicable laws, regulations and standards. Remediation of ACM may be required if, in the judgment of an accredited asbestos professional, at least one of the following criteria apply :

(1) The ACM is of a type, condition, and in a location such that, though normal and expected use of the facility, it will be damaged to the extent that it will produce an asbestos fiber hazard to facility occupants.

(2) The type and condition of the ACM is such that it is not in compliance with appropriate statutes or regulations.

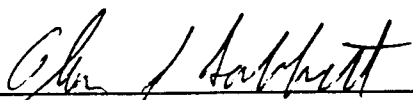
EXCEPTION: Remediation of ACM by AFBCA will not be accomplished if the transferee is willing to conduct remediation in accordance with applicable standards prior to beneficial occupancy as part of the transfer agreement.

d. **Full Disclosure.** AFBCA will make a full disclosure to the extent known of the types, quantities, locations, and condition of ACM in any real property to be conveyed, leased, sold, or otherwise transferred. Results of ambient air sampling will also be disclosed where available. This disclosure will normally be included in appraisal instructions, invitations for bids or offers to purchase, advertisements and contracts for sale, leases, and deeds.

e. **Management of ACM.** ACM remaining in a facility will be managed in-place using commonly accepted standards, criteria, and procedures in compliance with all applicable laws and regulations to assure the protection of human health and the environment. The responsibility for this management will be transferred to the owner or lessee by execution of the appropriate documents.

#### 4. EFFECTIVE DATE

This policy becomes effective on the date signed and remains in effect until superseded.

  
\_\_\_\_\_  
ALAN P. BABBITT  
Acting Deputy Assistant Secretary of the Air Force  
(Environment, Safety, and Occupational Health)

3/25/94  
Date

**Table G-1. Facilities Surveyed for Asbestos**  
(Page 1 of 4)

Facility No.	Facility Description	Asbestos-Containing Material Present
5	Communications Building <sup>(a)</sup>	Pipe insulation, duct insulation.
364	Med Food Inspection <sup>(b)</sup>	
370	Correction Facility <sup>(a)</sup>	Converter, overhead pipe insulation.
413	Water Treatment Plant <sup>(a)</sup>	Pipe insulation, hot water converter tank near ceiling.
417	Cold Storage & Meat Processing <sup>(a)</sup>	Converter, pipe insulation.
419	Exchange Retail Whse. <sup>(a)</sup>	Vertical pipe insulation connected to hot water heater in mechanical room.
420	Commissary Storage <sup>(a)</sup>	Floor tile, red, light tan floor tile, floor tile dark tan.
422	BE Maintenance Shop <sup>(a)</sup>	Floor tile, insulation.
423	BE Storage Facility <sup>(a)</sup>	Pipe near air handler (insulation).
427	Civilian Administration <sup>(b)</sup>	
441	BE Maintenance Shop <sup>(a)</sup>	Overhead pipe insulation joint, pipes, floor tile, cement.
450	Commissary <sup>(a)</sup>	Insulation.
460	Scale House <sup>(b)</sup>	
500	Base Operations <sup>(a)</sup>	Ceiling area in weather station, insulation chill water lines, insulation, pipes valve under expansion tank in mechanical room. Elbow joint in mechanical room. Pipe insulation in stairwell, 5th floor, 4th floor. Floor tile, 9th floor. Pipe insulation, 8th floor. Pipe insulation, 7th floor. Pipes in mechanical room (insulation).
502	Fire Station <sup>(a)</sup>	Insulation from converter, pipe insulation and converter in mechanical room. Pipes and domestic water heater tank. Insulation on pipes. Wall board.
505	Snow Equipment Hangar <sup>(a)</sup>	Siding and pipe elbow insulation.
538	Survival Equipment Storage <sup>(a)</sup>	Insulation around pipes and converter, 6-inch heatline, pipe in rubber room.
548	Airport TNG Facility <sup>(a)</sup>	Domestic hot water tank.
549	Adm. Aeromedical Evac. <sup>(a)</sup>	Heat converter and pipes.

Notes: Binders of Asbestos Sample Analysis Reports organized by building and The *Inorganic and Organic Radiological Analysis Required from USAF OEHL/SA* Brooks AFB, TX.

Facilities not listed in this table indicate no data was available.

\* Due to limited scope of the asbestos sampling logs, other ACM may exist in all facilities. Some asbestos removal has occurred but no documentation is available.

\*\* Strong evidence from VSIs and personal communications that asbestos removal was performed.

N/D None detected.

Sources: <sup>(a)</sup> Asbestos Sampling Results, 1987 - Oct/1993. Bio Environmental Office, Rickenbacker ANGB.

<sup>(b)</sup> Based on age of building and VSIs conducted in support of 1993 Environmental Baseline Survey.

Table G-1. Facilities Surveyed for Asbestos

(Page 2 of 4)

Facility No.	Facility Description	Asbestos-Containing Material Present
550	Heavy Equipment Storage <sup>(a)</sup>	Pipe insulation, wall insulation.
553	Fuels Administration Trailer <sup>(b)</sup>	
556	Supply and Equipment Shed <sup>(a)</sup>	Pipe insulation.
557	Flight Line Support <sup>(a)</sup>	Overhead pipes in building (insulation).
560	Hazardous Waste Storage <sup>(a)</sup>	N/D
594	Fuel Cell Maintenance <sup>(a)</sup>	Pipe insulation.
595	Engine Maintenance Shop <sup>(a)</sup>	Overhead pipes insulation.
596	Air Cargo Storage <sup>(a)</sup>	Pipe insulation.
597	Fuel Cell Shop <sup>(a)</sup>	Potable water line insulation.
600	Sewage Treatment Plant <sup>(a)</sup>	N/D
700	Guard House <sup>(a)</sup>	Air ducts, pipe insulation.
706	Small Arms Storage <sup>(b)</sup>	
709	Munitions Build-up <sup>(a)</sup>	Detected but ACM presence unknown.
710	Missile Maintenance <sup>(a)</sup>	Detected but ACM presence unknown.
800	Consolidated Open Mess <sup>(a)</sup>	Pipe insulation, ceiling, plaster air duct insulation, ceiling insulation in ceiling, tile floor, tanks (cannot read analysis to describe tank), gray paper insulation.
810	Gymnasium <sup>(a)</sup>	Pipe insulation, converter, hot water tank.
846	Vehicle Maintenance Shop <sup>(a)</sup>	Converter.
851	Ohio Army NG Armory <sup>(b)</sup>	
852	Academy Billeting <sup>(b)</sup>	
853	Cold Storage <sup>(a)</sup>	Insulation.
855	Military Clothing Sales <sup>(b)</sup>	
856	Info. Mgmt./Visual Info. <sup>(a)</sup>	Pipe insulation, floor tile and mastic insulation, kitchen ceiling, ventilation hood in Repro Graphics Room.
858	Academy Cold Storage <sup>(b)</sup>	
859	Academy Billeting <sup>(b)</sup>	
857	Old Barracks (empty) <sup>(b)</sup>	
860	Buckeye Inn - VOQ**	Pipe insulation, domestic hot water tank and converter. Chase behind mirror in rooms.

Notes: Binders of Asbestos Sample Analysis Reports organized by building and The *Inorganic and Organic Radiological Analysis Required from USAF OEHL/SA* Brooks AFB, TX.

Facilities not listed in this table indicate no data was available.

\* Due to limited scope of the asbestos sampling logs, other ACM may exist in all facilities. Some asbestos removal has occurred but no documentation is available.

\*\* Strong evidence from VSIs and personal communications that asbestos removal was performed.

N/D None detected.

Sources: <sup>(a)</sup> Asbestos Sampling Results, 1987 - Oct/1993. Bio Environmental Office, Rickenbacker ANGB.

<sup>(b)</sup> Based on age of building and VSIs conducted in support of 1993 Environmental Baseline Survey.

**Table G-1. Facilities Surveyed for Asbestos**  
(Page 3 of 4)

Facility No.	Facility Description	Asbestos-Containing Material Present
861	Buckeye Inn - VOQ**	Converter and domestic hot water heater, pipe insulation.
862	Buckeye Inn - VOQ**	Pipe insulation, converter and domestic hot water heater.
864	Dining Hall <sup>(a)</sup>	Pipe insulation.
865	Alert Building <sup>(a)</sup>	ACM detected, from what source unknown.
866	Billeting/Storage <sup>(a)</sup>	Converter, hot water heater, pipe insulation.
867	Reserves Admin. Building <sup>(a)</sup>	Converter, hot water heater, pipe insulation.
868	Communications/Offices <sup>(a)</sup>	N/D
869	Reserves-Recruiting <sup>(a)</sup>	Pipe insulation, converter.
870	Ohio ANG Academy Admin. <sup>(a)</sup>	Water heater insulation.
872	Supply & Equip. Warehouse <sup>(a)</sup>	Pipe insulation, ceiling/wall plaster.
873	Hazardous Materials Storage <sup>(b)</sup>	
874	Base Supply Warehouse <sup>(a)</sup>	Pipe insulation, converter.
875	Aircraft Maintenance Shop <sup>(a)</sup>	Floor tile and mastic, pipe insulation.
877	Heat Plant <sup>(a)</sup>	Insulation from boiler generators, pipe insulation, material that fell from beam.
879	Water Pump Station <sup>(a)</sup>	Pipe insulation.
885	Hangar <sup>(a)</sup>	Steam pipe insulation, pipe insulation.
887	Base Headquarters <sup>(b)</sup>	N/D
888	Hangar <sup>(a)</sup>	Insulation on heat converter and pipe insulation, floor tile.
894	Test Stand Shed <sup>(b)</sup>	
898	Pumphouse #6 <sup>(b)</sup>	
901	Transmitter/Rcvr. Facility <sup>(a)</sup>	Pipe insulation.
910	C.E. Offices <sup>(a)</sup>	Pipe insulation, white plaster insulation, water heater pipe insulation.
913	Flight Security Police <sup>(a)</sup>	Pipe insulation, heat converter insulation.
915	Fuels Mgmt./Life Support <sup>(a)</sup>	N/D
920	HQ Air Refueling - Admin. <sup>(a)</sup>	Pipe insulation.
926	Test Cell/Hush House <sup>(b)</sup>	

Notes: Binders of Asbestos Sample Analysis Reports organized by building and The *Inorganic and Organic Radiological Analysis Required from USAF OEHL/SA* Brooks AFB, TX.

Facilities not listed in this table indicate no data was available.

- \* Due to limited scope of the asbestos sampling logs, other ACM may exist in all facilities. Some asbestos removal has occurred but no documentation is available.

- \*\* Strong evidence from VSIs and personal communications that asbestos removal was performed.

N/D None detected.

Sources: <sup>(a)</sup> Asbestos Sampling Results, 1987 - Oct/1993. Bio Environmental Office, Rickenbacker ANGB.

<sup>(b)</sup> Based on age of building and VSIs conducted in support of 1993 Environmental Baseline Survey.

**Table G-1. Facilities Surveyed for Asbestos**  
(Page 4 of 4)

Facility No.	Facility Description	Asbestos-Containing Material Present
930	HQ TFW - Admin <sup>(a)</sup>	Pipe insulation.
931	Hangar <sup>1</sup>	Pipe insulation/pipe insulation outside hangar outside covering of building. Heating pipe insulation, fire insulation, steam pipe insulation.
932	AGE Shop <sup>(b)</sup>	
933	Electronics Maintenance <sup>(a)</sup>	Pipe insulation.
941	Recruiting Office <sup>(a)</sup>	Pipe insulation.
944	Flight Simulator <sup>(a)</sup>	Pipe insulation.
1050	Old Alert Station <sup>(a)</sup>	Pipe insulation (friable), tank insulation, plaster from ceiling, air sample.

Notes: Binders of Asbestos Sample Analysis Reports organized by building and The *Inorganic and Organic Radiological Analysis Required from USAF OEHL/SA* Brooks AFB, TX.

Facilities not listed in this table indicate no data was available.

- \* Due to limited scope of the asbestos sampling logs, other ACM may exist in all facilities. Some asbestos removal has occurred but no documentation is available.

\*\* Strong evidence from VSIs and personal communications that asbestos removal was performed.

N/D None detected.

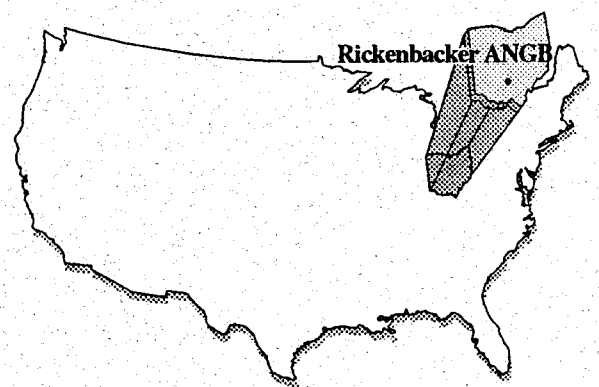
Sources: <sup>(a)</sup> Asbestos Sampling Results, 1987 - Oct/1993. Bio Environmental Office, Rickenbacker ANGB.

<sup>(b)</sup> Based on age of building and VSIs conducted in support of 1993 Environmental Baseline Survey.



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## APPENDIX H

## **APPENDIX H**

### **NOISE**

## APPENDIX H

### NOISE

#### 1.0 DESCRIPTION OF PROPOSED ALTERNATIVES

##### 1.1 Pre-Realignment

Typical noise sources on and around airfields usually include aircraft, surface traffic and other human activities.

Aircraft operations are the primary sources of noise in the vicinity of Rickenbacker Air National Guard Base (ANGB). The contours for PreRealignment operations are shown in Figure 3.4-4 in the Affected Environment Chapter of this Environmental Impact Statement (EIS). In airport analysis, areas with a Day-Night Average Sound Level (DNL) above 65 A-weighted decibels (dBA) are considered in land use compatibility planning and impact assessment; therefore, the distances to areas with DNLs greater than 65 dBA were of particular interest.

##### 1.2 REALIGNMENT BASELINE

At realignment, air cargo, general aviation, and military aviation activities will be as shown in Table H-1a. The noise contours associated with these operations are shown in Figure 3.4-5 of this EIS.

##### 1.3 PROPOSED ACTION

The proposed action for the reuse of Rickenbacker ANGB would result in a comprehensive reuse plan centered around a civilian aviation facility. Primary components of the aviation action include air cargo operations, general aviation operations, and military flight activities. Non-aviation land uses include industrial activities.

The fleet mix and annual aircraft operations for each of the modeled years are contained in Tables H-1b, c, and d. The DNL contours for the proposed flight operations and the proposed flight tracks modeled are presented in Section 4.4.4, Noise. The day-night split for all aircraft operations is shown in Table H-2.

The touch and go patterns and the initial departure and final approach flight tracks used in the modeling are shown in Figure H-1. The departure and arrival flight tracks used are based on existing usage. The flight tracks are oriented northeast and southwest. The touch and go flight tracks were based on those currently in use. Operations were apportioned to flight tracks based on historic use patterns supplied by the Rickenbacker ANGB control tower. Daily operations assigned to each flight track and time period for the Proposed Action are provided in Table H-3 for each of the study years.

**Table H-1a. Scenario: Realignment Baseline  
Modeled Year: 1994**

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			4,160	5.4
DC-8	1,830	44.0		
B-727	1,455	35.0		
B-757	480	11.5		
B-747	395	9.5		
General Aviation			27,480	35.6
Piston-single	18,645	67.8		
Piston-multi	3,930	14.3		
Turbo-prop	2,940	10.7		
Turbo jet	1,965	7.2		
Rotocraft	0	0.0		
Ohio Army National Guard			8,610	11.2
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	3.6
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	44.2
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
Totals			77,146	100.0

Notes: <sup>(a)</sup> Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

**Table H-1b. Scenario: Proposed Action  
Modeled Year: 1999**

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			31,165	24.2
DC-8	5,445	17.5		
B-727	2,005	6.4		
B-757	11,610	37.3		
B-747	9,605	30.8		
AN-124	1,250	4.0		
IL-76	1,250	4.0		
General Aviation			52,305	40.5
Piston-single	24,905	47.6		
Piston-multi	9,965	19.0		
Turbo-prop	8,715	16.7		
Turbo jet	7,475	14.3		
Rotary Wing	1,245	2.4		
Ohio Army National Guard			8,610	6.7
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	2.2
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	26.4
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
Totals			128,976	100.0

Notes: <sup>(a)</sup> Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

Table H-1c. Scenario: Proposed Action  
Modeled Year: 2004

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			39,870	24.3
DC-8	0	0.0		
B-727	0	0.0		
B-757	19,735	49.5		
B-747	16,145	40.5		
AN-124	1,995	5.0		
IL-76	1,995	5.0		
General Aviation			78,400	47.9
Piston-single	30,050	38.3		
Piston-multi	16,990	21.7		
Turbo-prop	15,680	20.0		
Turbo jet	11,760	15.0		
Rotary Wing	3,920	5.0		
Ohio Army National Guard			8,610	5.3
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	1.7
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	20.8
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
Totals			163,776	100

Notes: <sup>(a)</sup>Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

**Table H-1d. Scenario: Proposed Action  
Modeled Year: 2014**

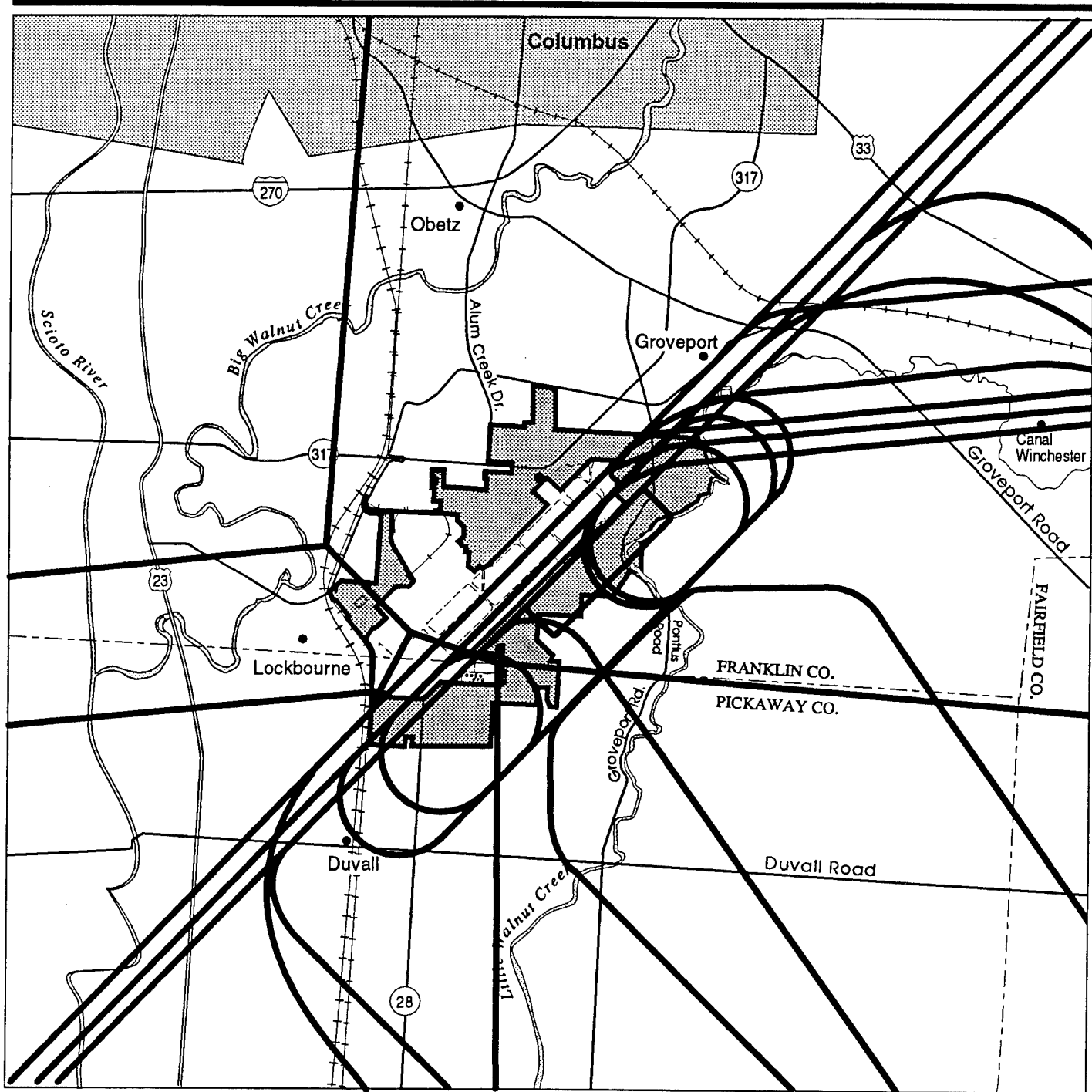
Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			57,405	24.4
DC-8	0	0.0		
B-727	0	0.0		
B-757	27,025	47.1		
B-747	22,110	38.5		
AN-124	4,135	7.2		
IL-76	4,135	7.2		
General Aviation			130,830	56.0
Piston-single	43,110	32.9		
Piston-multi	28,250	21.6		
Turbo-prop	31,220	23.9		
Turbo jet	19,325	14.8		
Rotary Wing	8,925	6.8		
Ohio Army National Guard			8,610	3.7
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	1.2
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	14.6
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
<b>Totals</b>			<b>233,741</b>	<b>100.0</b>

Notes: <sup>(a)</sup> Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

**Table H-2. Day-Night Split of Aircraft Operations For Proposed Action and Alternatives**

Aircraft Type	Percent Daytime	Percent Nighttime
Air Cargo (DC-8, B-727, B-757, B-747)	20	80
Air Cargo (AN-124, IL-76)	80	20
Army National Guard/Army Reserve	95	5
Air National Guard	97	3





#### EXPLANATION

- Flight tracks
- Rickenbacker Air National Guard Base Boundary
- Rickenbacker Port Authority Boundary
- City of Columbus

#### Primary Flight Tracks - All Aviation Alternatives

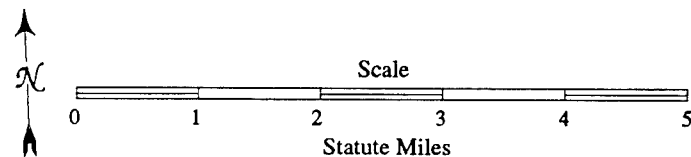


Figure H-1

**Table H-3a**  
**Assignment of Operations For the Proposed Action**  
**Modeled Year: 1994**

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	0.50	2.01	0.50	2.01	--	--	--	--	--	--
B-727	--	--	0.40	1.59	0.40	1.59	--	--	--	--	--	--
B-757	--	--	0.13	0.53	0.13	0.53	--	--	--	--	--	--
B-747	--	--	0.11	0.43	0.11	0.43	--	--	--	--	--	--
MU-300	--	--	2.56	0.13	2.56	0.13	--	--	--	--	--	--
INM-76	--	--	5.11	0.27	5.11	0.27	--	--	--	--	--	--
1 Engine	--	--	24.26	1.28	24.26	1.28	--	--	--	--	--	--
2 Engine	--	--	3.83	0.20	3.83	0.20	--	--	--	--	--	--
Rotocraft	--	--	--	--	--	--	--	--	--	--	--	--
C-130	--	--	0.63	0.02	0.63	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	1.31	0.04	--	--	6.52	0.20	--	--
C-141	--	--	1.29	0.04	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	24.24	0.75	--	--
UH-1 <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
<b>TOTALS</b>	<b>5.28</b>	<b>0.20</b>	<b>50.29</b>	<b>7.06</b>	<b>45.41</b>	<b>6.74</b>	<b>10.16</b>	<b>0.52</b>	<b>35.05</b>	<b>1.09</b>	<b>3.55</b>	<b>0.18</b>

Notes: <sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.  
<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.  
<sup>(c)</sup> All helicopter tracks are Track 2.

Table H-3b  
Assignment of Operations For the Proposed Action  
Modeled Year: 1999

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	0.23	0.89	0.23	0.89	--	--	--	--	--	--
B-727	--	--	0.08	0.33	0.08	0.33	--	--	--	--	--	--
B-757	--	--	4.44	17.80	4.44	17.80	--	--	--	--	--	--
B-747	--	--	3.31	13.26	3.31	13.26	--	--	--	--	--	--
MU-300	--	--	9.72	0.51	9.72	0.51	--	--	--	--	--	--
INM-76	--	--	12.97	0.68	12.97	0.68	--	--	--	--	--	--
1 Engine	--	--	32.41	1.71	32.41	1.71	--	--	--	--	--	--
2 Engine	--	--	11.34	0.60	11.34	0.60	--	--	--	--	--	--
Rotocraft	--	--	1.62	0.09	--	--	1.62	0.09	--	--	--	--
MD-81	--	--	0.46	1.86	0.46	1.86	--	--	--	--	--	--
C-130	--	--	0.63	0.02	0.63	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	1.31	0.04	--	--	6.52	0.80	--	--
C-141	--	--	1.29	0.04	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	28.24	0.75	--	--
UH-1N <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
TOTALS	5.28	0.20	89.97	38.35	83.47	37.94	11.78	0.61	35.05	1.09	3.55	0.18

Notes: <sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.  
<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.  
<sup>(c)</sup> All helicopter tracks are Track 2.

**Table H-3c**  
**Assignment of Operations For the Proposed Action**  
**Modeled Year: 2004**

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	--	--	--	--	--	--	--	--	--	--
B-727	--	--	--	--	--	--	--	--	--	--	--	--
B-757	--	--	5.40	21.63	5.40	21.63	--	--	--	--	--	--
B-747	--	--	5.53	22.07	5.53	22.07	--	--	--	--	--	--
MU-300	--	--	15.31	0.80	15.31	0.80	--	--	--	--	--	--
INM-76	--	--	22.11	1.17	22.11	1.17	--	--	--	--	--	--
1 Engine	--	--	39.11	2.06	39.11	2.06	--	--	--	--	--	--
2 Engine	--	--	20.40	1.08	20.40	1.08	--	--	--	--	--	--
Rotocraft	--	--	5.11	0.26	--	--	5.11	0.26	--	--	--	--
C-130	--	--	0.63	0.02	0.63	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	1.31	0.04	--	--	6.52	0.20	--	--
C-141	--	--	1.29	0.04	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	24.24	0.75	--	--
UH-1N <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
TOTALS	5.28	0.20	126.36	49.69	116.37	49.11	15.27	0.78	35.05	1.09	3.55	0.18

Notes: <sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.

<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.

<sup>(c)</sup> All helicopter tracks are Track 2.

**Table H-3d**  
**Assignment of Operations For the Proposed Action**  
**Modeled Year: 2014**

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	--	--	--	--	--	--	--	--	--	--
B-727	--	--	--	--	--	--	--	--	--	--	--	--
B-757	--	--	7.42	29.62	29.62	29.62	--	--	--	--	--	--
B-747	--	--	8.34	33.26	33.26	33.26	--	--	--	--	--	--
MU-300	--	--	25.14	1.32	1.32	1.32	--	--	--	--	--	--
INM-76	--	--	36.76	1.94	1.94	1.94	--	--	--	--	--	--
1 Engine	--	--	56.10	2.96	2.96	2.96	--	--	--	--	--	--
2 Engine	--	--	40.62	2.12	2.12	2.12	--	--	--	--	--	--
Rotocraft	--	--	11.60	0.62	0.62	0.62	11.60	0.62	--	--	--	--
C-130	0.63	0.02	--	--	0.63	0.02	--	--	3.19	0.09	--	--
C-135	1.31	0.04	--	--	1.31	0.04	--	--	6.52	0.20	--	--
C-141	1.29	0.04	--	--	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	24.24	0.75	--	--
UH-1N <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
TOTALS	8.51	0.30	196.14	72.36	182.89	71.52	21.76	1.14	35.67	1.09	2.92	0.16

Notes:

<sup>(a)</sup>Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1. Fifty percent of traffic on new parallel runway.<sup>(b)</sup>Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2. Fifty percent of traffic on new parallel runway.<sup>(c)</sup>All helicopter tracks are Track 2.

Under the Proposed Action, an additional parallel runway was modeled for the 20 year forecast condition. The same method of sortie allocation was used as for all other years.

#### 1.4 AVIATION WITH INDUSTRIAL PARK ALTERNATIVE

Under this alternative, aircraft operations would remain as described under the proposed action. Operations, flight tracks, and noise contours are unchanged from the Proposed Action.

#### 1.5 AVIATION WITH MIXED USE ALTERNATIVE

Under this alternative, both military and civil aviation activities would continue at Rickenbacker ANGB. However, the level of civil aviation activities would be less than under the Proposed Action, and, the rate of growth of these activities would also be less. Flight operations associated with this alternative are shown in Table H-4, for all of the forecast years. Allocation of these operations is shown in Table H-5.

**Table H-4a. Scenario: Aviation with Mixed Use  
Modeled Year: 1994**

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			4,160	5.4
DC-8	1,830	44.0		
B-727	1,455	35.0		
B-757	480	11.5		
B-747	395	9.5		
General Aviation			27,480	35.6
Piston-single	18,645	67.8		
Piston-multi	3,930	14.3		
Turbo-prop	2,940	10.7		
Turbo jet	1,965	7.2		
Rotary Wing	0	0.0		
Ohio Army National Guard			8,610	11.2
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	3.6
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	44.2
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
<b>Totals</b>			<b>77,146</b>	<b>100.0</b>

Notes: <sup>(a)</sup>Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

1  
2

**Table H-4b. Scenario: Aviation with Mixed Use**  
**Modeled Year: 1999**

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			4,915	6.1
DC-8	940	19.1		
B-727	345	7.0		
B-757	1,975	40.2		
B-747	1,655	33.7		
General Aviation			29,520	36.9
Piston-single	14,055	47.6		
Piston-multi	5,625	19.0		
Turbo-prop	4,920	16.7		
Turbo jet	4,220	14.3		
Rotary Wing	700	2.4		
Ohio Army National Guard			8,610	10.8
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	3.5
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	42.7
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
Totals			79,941	100.0

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5

Notes: <sup>(a)</sup>Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

1  
2

**Table H-4c. Scenario: Aviation with Mixed Use  
Modeled Year: 2004**

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			5,865	7.0
DC-8	0	0.0		
B-727	0	0.0		
B-757	3,225	55.0		
B-747	2,640	45.0		
General Aviation			32,874	39.0
Piston-single	12,600	38.3		
Piston-multi	7,124	21.7		
Turbo-prop	6,575	20.0		
Turbo jet	4,930	15.0		
Rotary Wing	1,645	5.0		
Ohio Army National Guard			8,610	10.2
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	3.3
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	40.5
KC-135R	25,000	73.3		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
Totals			84,245	100.0

Notes: <sup>(a)</sup> Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

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4  
5



**Table H-4d. Scenario: Aviation with Mixed Use**  
**Modeled Year: 2014**

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Cargo			8,275	9.0
DC-8	0	0.0		
B-727	0	0.0		
B-757	4,550	55.0		
B-747	3,725	45.0		
General Aviation			38,600	41.8
Piston-single	12,720	32.9		
Piston-multi	8,335	21.6		
Turbo-prop	9,210	23.9		
Turbo jet	5,700	14.8		
Rotary Wing	2,635	6.8		
Ohio Army National Guard			8,610	9.3
Rotary Wing	7,810	90.7		
C-12	800	9.3		
Army Reserve			2,796	3.0
Rotary Wing	2,256	80.7		
U-19	540	19.3		
Ohio Air National Guard			34,100	36.9
KC-135R	25,000	73.7		
C-130	2,400	7.0		
KC-135E	4,900	14.4		
Transients <sup>(a)</sup>	1,800	5.3		
<b>Totals</b>			<b>92,381</b>	<b>100.0</b>

Notes: <sup>(a)</sup>Includes C-141, C-18, DC-9, P-3, and C-26 aircraft.

Table H-5a Assignment of Operations For the Aviation with Mixed Use Alternative  
Modeled Year: 1994

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	0.50	2.01	0.50	2.01	--	--	--	--	--	--
B-727	--	--	0.40	1.59	0.40	1.59	--	--	--	--	--	--
B-757	--	--	0.13	0.53	0.13	0.53	--	--	--	--	--	--
B-747	--	--	0.11	0.43	0.11	0.43	--	--	--	--	--	--
MU-300	--	--	2.56	0.13	2.56	0.13	--	--	--	--	--	--
INM-76	--	--	5.11	0.27	5.11	0.27	--	--	--	--	--	--
1 Engine	--	--	24.26	1.28	24.26	1.28	--	--	--	--	--	--
2 Engine	--	--	3.83	0.20	3.83	0.20	--	--	--	--	--	--
Rotocraft	--	--	--	--	--	--	--	--	--	--	--	--
C-130	--	--	0.63	0.02	0.63	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	1.31	0.04	--	--	6.52	0.20	--	--
C-141	--	--	1.29	0.04	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	24.24	0.75	--	--
UH-1 <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
<b>TOTALS</b>	<b>5.28</b>	<b>0.20</b>	<b>50.29</b>	<b>7.06</b>	<b>45.41</b>	<b>6.74</b>	<b>10.16</b>	<b>0.52</b>	<b>35.05</b>	<b>1.09</b>	<b>3.55</b>	<b>0.18</b>

Notes:  
<sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.  
<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.  
<sup>(c)</sup> All helicopter tracks are Track 2.

**Table H-5b Assignment of Operations For the Aviation with Mixed Use Alternative**  
**Modeled Year: 1999**

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	0.26	1.03	0.26	1.03	--	--	--	--	--	--
B-727	--	--	0.09	0.38	0.09	0.38	--	--	--	--	--	--
B-757	--	--	0.54	2.16	0.54	2.16	--	--	--	--	--	--
B-747	--	--	0.45	1.81	0.45	1.81	--	--	--	--	--	--
MU-300	--	--	5.49	0.29	5.49	0.29	--	--	--	--	--	--
INM-76	--	--	7.32	0.39	7.32	0.39	--	--	--	--	--	--
1 Engine	--	--	18.29	0.96	18.29	0.96	--	--	--	--	--	--
2 Engine	--	--	6.40	0.34	6.40	0.34	--	--	--	--	--	--
Rotocraft	--	--	0.91	0.05	--	--	0.91	0.05	--	--	--	--
C-130	--	--	0.63	0.02	0.63	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	1.31	0.04	--	--	6.52	0.20	--	--
C-141	--	--	1.29	0.04	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	24.24	0.75	--	--
UH-1N <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
<b>TOTALS</b>	<b>5.28</b>	<b>0.20</b>	<b>53.14</b>	<b>8.03</b>	<b>47.35</b>	<b>17.66</b>	<b>11.07</b>	<b>0.57</b>	<b>35.05</b>	<b>1.09</b>	<b>3.55</b>	<b>0.18</b>

Notes: <sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.

<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.

<sup>(c)</sup> All helicopter tracks are Track 2.

Table H-5c Assignment of Operations For the Aviation with Mixed Use Alternative  
Modeled Year: 2004

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	--	--	--	--	--	--	--	--	--	--
B-727	--	--	--	--	--	--	--	--	--	--	--	--
B-757	--	--	0.88	3.53	0.88	3.53	--	--	--	--	--	--
B-747	--	--	0.45	1.80	0.45	1.80	--	--	--	--	--	--
MU-300	--	--	6.42	0.34	6.42	0.34	--	--	--	--	--	--
INM-76	--	--	9.34	0.49	9.34	0.49	--	--	--	--	--	--
1 Engine	--	--	16.40	0.86	16.40	0.86	--	--	--	--	--	--
2 Engine	--	--	8.56	0.45	8.56	0.45	--	--	--	--	--	--
Rotocraft	--	--	2.14	0.11	--	--	2.14	0.11	--	--	--	--
C-130	--	--	0.63	0.02	0.63	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	1.31	0.04	--	--	6.52	0.20	--	--
C-141	--	--	1.29	0.04	1.29	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	1.40	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	3.88	0.12	--	--	24.24	0.75	--	--
UH-1N <sup>(c)</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
<b>TOTALS</b>	<b>5.28</b>	<b>0.20</b>	<b>57.58</b>	<b>8.2</b>	<b>50.56</b>	<b>7.77</b>	<b>12.3</b>	<b>0.63</b>	<b>35.05</b>	<b>1.09</b>	<b>3.55</b>	<b>0.18</b>

Notes:  
<sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.  
<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.  
<sup>(c)</sup> All helicopter tracks are Track 2.

**Table H-5d Assignment of Operations For the Aviation with Mixed Use Alternative**  
**Modeled Year: 2014**

Aircraft	Departure Tracks				Arrival Tracks				Closed Patterns			
	Departure Track 1 <sup>(a)</sup>		Departure Track 2 <sup>(b)</sup>		Arrival Track 1		Arrival Track 2		Closed Pattern 1		Closed Pattern 2	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
DC-8	--	--	--	--	--	--	--	--	--	--	--	--
B-727	--	--	--	--	--	--	--	--	--	--	--	--
B-757	--	--	1.25	4.99	--	4.99	--	--	--	--	--	--
B-747	--	--	1.02	4.08	--	4.08	--	--	--	--	--	--
MU-300	--	--	7.42	0.39	--	0.39	--	--	--	--	--	--
INM-76	--	--	10.85	0.57	--	0.57	--	--	--	--	--	--
1 Engine	--	--	16.55	0.87	--	0.87	--	--	--	--	--	--
2 Engine	--	--	11.99	0.63	--	0.63	--	--	--	--	--	--
Rotocraft	--	--	3.43	0.18	--	--	3.43	0.18	--	--	--	--
C-130	--	--	0.63	0.02	--	0.02	--	--	2.57	0.09	0.63	0.02
C-135	--	--	1.31	0.04	--	0.04	--	--	6.52	0.20	--	--
C-141	--	--	1.29	0.04	--	0.04	--	--	1.38	0.04	--	--
C-12	1.40	0.08	--	--	--	0.08	--	--	0.34	0.01	--	--
KC-135R	3.88	0.12	--	--	--	0.12	--	--	24.24	0.75	--	--
UH-1N <sup>3</sup>	--	--	10.16	0.52	--	--	10.16	0.52	--	--	2.92	0.16
<b>TOTALS</b>	<b>5.28</b>	<b>0.20</b>	<b>65.9</b>	<b>12.33</b>	<b>57.59</b>	<b>11.83</b>	<b>13.59</b>	<b>0.7</b>	<b>35.05</b>	<b>1.09</b>	<b>3.55</b>	<b>0.18</b>

Notes: <sup>(a)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Right / 23 Left are Track 1.

<sup>(b)</sup> Arrivals, Departures, and Closed Patterns associated with runway 05 Left / 23 Right are Track 2.

<sup>(c)</sup> All helicopter tracks are Track 2.

Under the aviation with mixed use alternative, noise impacts will be less than under the Proposed Action due to the reduced level of aircraft operations.

## 1.6 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, aviation activities would continue at the same level and projected rate-of-growth as under the Aviation with Mixed Use Alternative. Flight operations would be conducted as described above.

## 2.0 NOISE METRICS

Noise, as used in this context, refers to sound pressure variations audible to the ear. The audibility of a sound depends on the amplitude and frequency of the sound and the individual's capability to hear the sound. Whether the sound is judged as noise depends largely on the listener's current activity and attitude toward the sound. The range in sound pressures that the human ear can comfortably detect encompasses a wide range of amplitudes, typically a factor larger than a million. To obtain convenient measurements and sensitivities at extremely low and high sound pressures, sound is measured in units of dB. The dB is a dimensionless unit related to the logarithm of the ratio of the measured level to a reference level.

Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly. However, the following shortcut method can be used to combine sound levels:

Difference between	Add the following
<u>two dB values</u>	<u>to the higher level</u>
0 to 1	3
2 to 3	2
4 to 9	1
10 or more	0

The ear is not equally sensitive at all frequencies of sound. At low frequencies, characterized as a rumble or roar, the ear is not very sensitive while at higher frequencies, characterized as a screech or a whine, the ear is most sensitive. The A-weighted level was developed to measure and report sound levels in a way that would more closely approach how people perceive the sound. All sound levels reported herein are in terms of A-weighted sound levels.

Environmental sound levels typically vary with time. This is especially true for areas near airports where noise levels will increase substantially as the aircraft passes overhead and afterward diminish to typical community levels. Both the Department of Defense (DOD) and the

Federal Aviation Administration (FAA) have specified the following three noise metrics to describe aviation noise.

**Day-Night Average Sound Level (DNL)** is the 24-hour energy average A-weighted sound level with a 10 dB weighting added to those levels occurring between 10 p.m. and 7 a.m. the following morning. The 10 dB weighting is a penalty representing the added intrusiveness of noise during normal sleeping hours. DNL is used to determine land use compatibility with noise from aircraft and surface traffic. The expression  $L_{dn}$  is often used in equations to designate day-night average sound level.

**Maximum Sound Level** is the highest instantaneous sound level observed during a single noise event no matter how long the sound may persist (see Figure H-2).

**Sound Exposure Level (SEL)** value represents the A-weighted sound level integrated over the entire duration of the event and referenced to a duration of 1 second. Hence, it normalizes the event to a 1-second event. Typically, most events (aircraft flyover) last longer than 1 second, and the SEL value will be higher than the maximum sound level of the event. Figure H-2 illustrates the relationship between the maximum sound level and SEL.

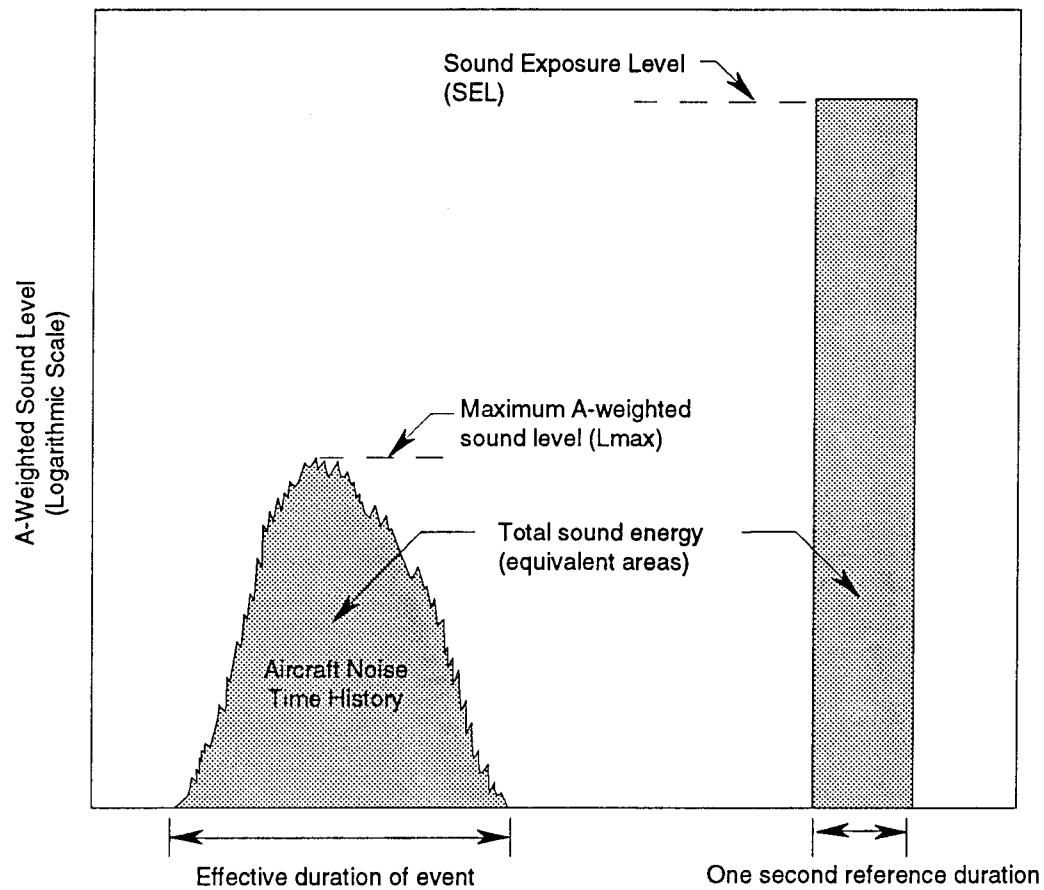
### **3.0 NOISE MODELS**

#### **3.1 AIR TRAFFIC**

The FAA-approved Noise Exposure Model (NOISEMAP), Version 6.0 (Moulton, 1990, February), was used to predict aircraft noise levels. Since the early 1970s, the DOD has been actively developing and refining the NOISEMAP program and its associated data base. The NOISEMAP computer program is a comprehensive set of computer routines for calculating noise contours from aircraft flight and ground runup operations, using unique aircraft noise data for both fixed-and rotary-wing aircraft. The program requires specific input data, consisting of runway layout, aircraft types, number of operations, flight tracks, and noise performance data, to compute a grid of DNL values at uniform intervals. The grid is then processed by a contouring program which draws the contours at selected intervals.

### **4.0 ASSESSMENT CRITERIA**

Criteria for assessing the effects of noise include annoyance, speech interference, sleep disturbance, noise-induced hearing loss, possible nonauditory health effects, reaction by animals, and land use compatibility. These criteria are often developed using statistical methods. The validity of generalizing statistics devised from large populations are suspect when applied to small sample sizes as we have in the affected areas near Rickenbacker ANGB. Caution should be employed when interpreting the results of the impact analysis.



**Sound Exposure Level (SEL) and Comparison to Aircraft Noise Time History**

**Figure H-2**



#### 4.1 ANNOYANCE DUE TO SUBSONIC AIRCRAFT NOISE

Noise-induced annoyance is an attitude or mental process with both acoustic and nonacoustic determinants (Fidell et al., 1988). Noise-induced annoyance is perhaps most often defined as generalized adverse attitude toward noise exposure. Noise annoyance is affected by many factors, including sleep and speech interference and task interruption. The level of annoyance may also be affected by many non-acoustic factors.

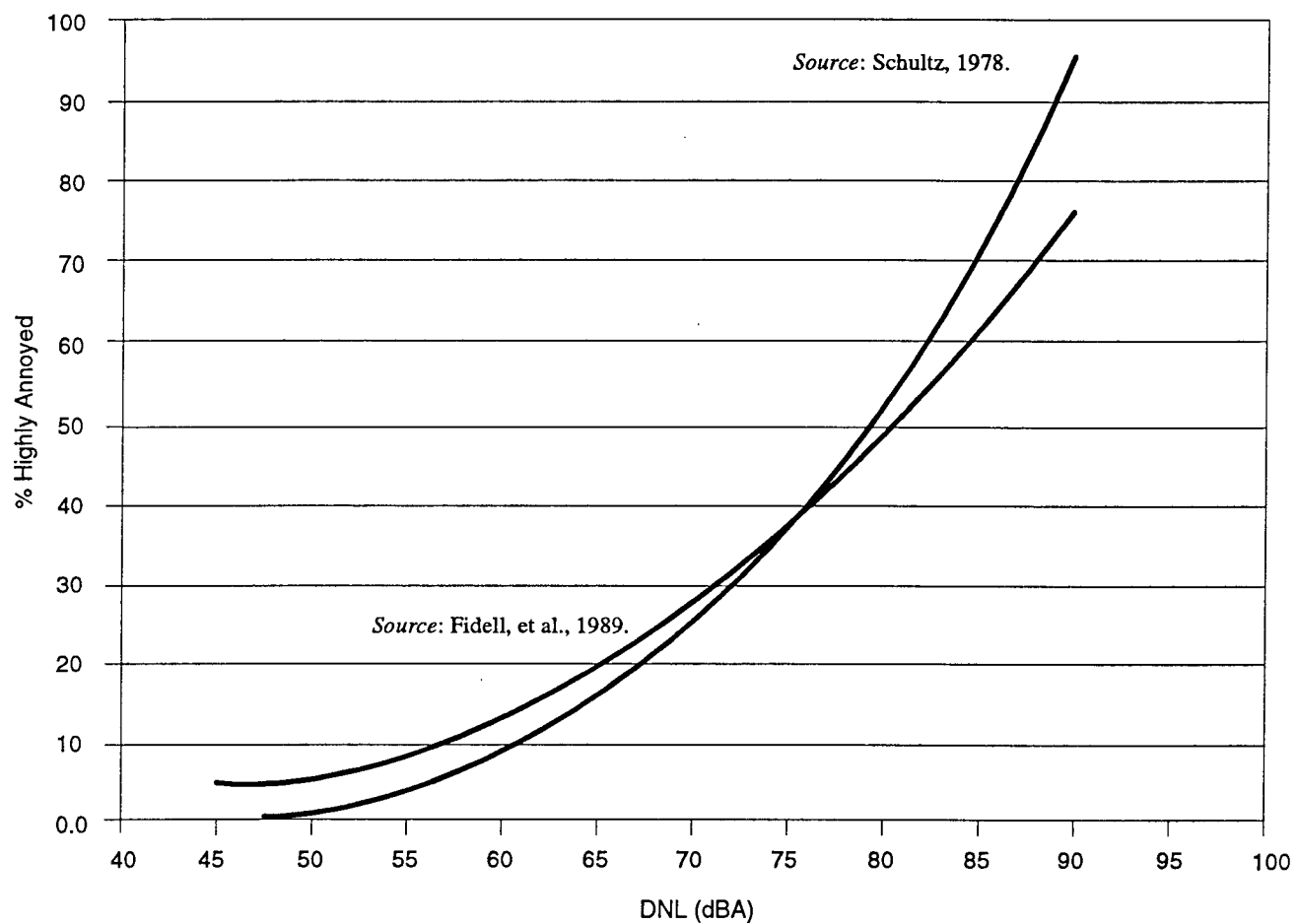
In communities in which the prevalence of annoyance is affected primarily by noise, reductions in exposure can be expected to lead to reductions in prevalence of annoyance. In communities in which the prevalence of annoyance is controlled by nonacoustic factors, such as odor, traffic, congestion, etc., there may be little or no reduction in annoyance associated with reductions in exposure. The intensity of community response to noise exposure may even, in some cases, be essentially independent of physical exposure. In the case of community response to actions, such as airport siting or scheduling of supersonic transport aircraft, vigorous reaction has been encountered at the mere threat of exposure, or minor increase in exposure.

The standard method for determining the prevalence of annoyance in noise exposed communities is by attitudinal survey. Surveys generally solicit self-reports of annoyance through one or more questions of the form "How bothered or annoyed have you been by the noise of (noise source) over the last (time period)?" Respondents are typically constrained in structured interviews to select one of a number of response alternatives, often named categories such as "Not At All Annoyed," "Slightly Annoyed," "Moderately Annoyed," "Very Annoyed," or "Extremely Annoyed." Other means are sometimes used to infer the prevalence of annoyance from survey data (for example, by interpretation of response to activity interference questions or by construction of elaborate composite indices), with varying degrees of fact validity and success.

Predictions of the prevalence of annoyance in a community can be made by extrapolation from an empirical dosage-effect relationship. Based on the results of a number of sound surveys, Schultz (1978) developed a relationship between percent highly annoyed and DNL:

$$\text{Percent Highly Annoyed} = 0.8553 \text{ DNL} - 0.0401 \text{ DNL}^2 + 0.00047 \text{ DNL}^3$$

Note that this relationship should not be evaluated outside the range of DNL = 45 to 90 dB. Figure H-3 presents this equation graphically. Less than 15 to 20 percent of the population would be predicted to be annoyed by DNL values less than 65 dBA, whereas over 37 percent of the population would be predicted to be annoyed from DNL values greater than 75 dBA. The relationship developed by Schultz was presented in the Guidelines for Preparing Environmental Impact Statements on Noise (National Academy of Sciences, 1977).



### Community Noise Annoyance Curves

Figure H-3

1 These results were recently reviewed (Fidell et al., 1989) and the original  
2 findings updated with results of more recent social surveys, bringing the  
3 number of data points used in defining the relationship to over 400. The  
4 findings of the new study differ only slightly from those of the original  
5 study.

#### 6 **4.2 SPEECH INTERFERENCE AND RELATED EFFECTS DUE TO** 7 **AIRCRAFT FLYOVER NOISE**

8 One of the ways that noise affects daily life is by preventing or impairing  
9 speech communication. In a noise environment, understanding of  
10 speech is diminished by masking of speech signals by intruding noises.  
11 Speakers generally raise their voices or move closer to listeners to  
12 compensate for masking noise in face-to-face communications, thereby  
13 increasing the level of speech at the listener's ear. As intruding noise  
14 levels rise higher and higher, speakers may cease talking altogether  
15 until conversation can be resumed at comfortable levels of vocal effort  
16 after noise intrusions end.

17 If the speech source is a radio or television, the listener may increase  
18 the volume during a noise intrusion. If noise intrusions occur repeatedly,  
19 the listener may choose to set the volume at a high level so that the  
20 program material can be heard even during noise intrusions.

21 In addition to losing information contained in the masked speech  
22 material, the listener may lose concentration because of the  
23 interruptions and thus become annoyed. If the speech message is some  
24 type of warning, the consequences could be serious.

25 Current practice in quantification of the magnitude of speech  
26 interference and predicting speech intelligibility ranges from metrics  
27 based on A-weighted sound pressure levels of the intruding noise alone  
28 to more complex metrics requiring detailed spectral information about  
29 both speech and noise intrusions. There are other effects of the reduced  
30 intelligibility of speech caused by noise intrusions. For example, if the  
31 understanding of speech is interrupted, performance may be reduced,  
32 annoyance may increase, and learning may be impaired. As the noise  
33 level of an environment increases, people automatically raise their  
34 voices. The effect does not take place, however, if the noise event were  
35 to rise to a high level very suddenly.

##### 36 **4.2.1 Speech Interference Effects from Time-Varying Noise**

37 Most research on speech interference due to noise has included the  
38 study of steady-state noise. As a result, reviews and summaries of  
39 noise effects on speech communications concentrate on continuous or  
40 at least long duration noises (Miller, 1974). However, noise intrusions  
41 are not always continuous or of long duration, but are frequently  
42 transient in nature. Transportation noise generates many such noise  
43 intrusions, consisting primarily of individual vehicle pass-bys, such as  
44 aircraft flyover. Noise emitted by other vehicles (motorboats,  
45 snowmobiles, and off-highway vehicles) is also transient in nature.

1 It has been shown, at least for aircraft flyover noise, that accuracy of  
2 predictions of speech intelligibility are ranked in a similar fashion for  
3 both steady-state and time-varying or transient sound (Williams et al.,  
4 1971; Kryter and Williams, 1966). Of course, if one measures the noise  
5 of a flyover by the maximum A-level, then intelligibility associated with  
6 this level would be higher than for a steady noise of the same value,  
7 simply because the level is less than the maximum for much of the  
8 duration of the flyover.

#### 9 **4.2.2 Other Effects of Noise Relating to Speech Intelligibility**

10 Aside from the direct effects of reduction in speech intelligibility, related  
11 effects may occur that tend to compound the loss of speech intelligibility  
12 itself.

13 **Learning.** One of the environments in which speech intelligibility plays  
14 a critical role is the classroom. In classrooms of schools exposed to  
15 aircraft flyover noise, speech becomes masked or the teacher stops  
16 talking altogether during an aircraft flyover (Crook and Langdon, 1974).  
17 Pauses begin to occur when instantaneous flyover levels exceed 60 dB  
18 (A-weighted). Masking of the speech of teachers who do not pause  
19 starts at about the same level.

20 At levels of 75 dB some masking occurs for 15 percent of the flyovers  
21 and increases to nearly 100 percent at 82 dB. Pauses occur for about  
22 80 percent of the flyovers at this noise level. Since a marked increase  
23 in pauses and masking occurs when levels exceed 75 dB, this level is  
24 sometimes considered as one above which teaching is impaired due to  
25 disruption of speech communication. The effect that this may have on  
26 learning is unclear at this time. However, one study (Arnoult et al.,  
27 1986) could find no effect of noise on cognitive tasks from jet or  
28 helicopter noise over a range from 60 to 80 dB (A-level), even though  
29 intelligibility scores indicated a continuous decline starting at the 60 dB  
30 level. In a Japanese study (Ando et al., 1975) researchers failed to find  
31 differences in mental task performance among children from  
32 communities with different aircraft noise exposure.

33 Although there seems to be no proof that noise from aircraft flyovers  
34 affects learning, it is reported by Mills (1975) that children are not as  
35 able to understand speech in the presence of noise as are adults. It is  
36 hypothesized that part of the reason is due to the increased vocabulary  
37 that the adult can draw upon as compared to the more limited  
38 vocabulary available to the young student. Also, when one is learning a  
39 language, it is more critical that all words be heard rather than only  
40 enough to attain 95 percent sentence intelligibility, which may be  
41 sufficient for general conversations. It was mentioned above that when  
42 the maximum A-level for aircraft flyovers heard in a classroom exceeds  
43 75 dB, masking of speech increases rapidly. However, it was also noted  
44 that pausing during flyovers and masking of speech for those teachers  
45 who continue to lecture during a flyover start at levels around 60 dB  
46 (Pearsons and Bennett, 1974).

47 **Annoyance.** Klatt, Stevens, and Williams (1969) studied the  
48 annoyance of speech interference by asking people to judge the  
49 annoyance of aircraft noise in the presence and absence of speech

1 material. The speech material was composed of passages from  
2 newspaper and magazine articles. In addition to rating aircraft noise on  
3 an acceptability scale (unacceptable, barely acceptable, acceptable, and  
4 of no concern), the subjects were required to answer questions about the  
5 speech material. The voice level was considered to represent a raised  
6 voice level (assumed to be 68 dB). In general, for the raised voice  
7 talker, the rating of barely acceptable was given to flyover noise levels  
8 of 73 to 76 dB. However, if the speech level was reduced, the rating of  
9 the aircraft tended to be more toward unacceptable. The results  
10 suggested that if the speech level were such that 95 percent or better  
11 sentence intelligibility was maintained, then a barely acceptable rating or  
12 better acceptability rating could be expected. This result is in general  
13 agreement with the finding in schools that teachers pause or have their  
14 speech masked at levels above 75 dB (Crook and Langdon, 1974).

15 Hall, Taylor, and Bimie (1985) recently tried to relate various types of  
16 activity interference in the home, related to speech and sleeping, to  
17 annoyance. The study found that there is a 50 percent chance that  
18 people's speech would be interfered with at a level of 58 dB. This result  
19 is in agreement with the other results, considering that the speech levels  
20 in the school environment of the Crook study are higher than the levels  
21 typically used in the home. Also, in a classroom situation the teacher  
22 raises his or her voice as the flyover noise increases in intensity.

#### 23 **4.2.3 Predicting Speech Intelligibility and Related Effects Due to** 24 **Aircraft Flyover Noise**

25 It appears that when aircraft flyover noises exceed approximately 60 dB,  
26 speech communication may be interfered with either by masking or by  
27 pausing on the part of the talker. Increasing the level of the flyover  
28 noise to 80 dB would reduce the intelligibility to zero even if a loud voice  
29 is used by those attempting to communicate.

30 The levels mentioned above refer to noise level measured indoors. The  
31 same noises measured outdoors would be 15 to 25 dB higher than these  
32 indoor levels during summer (windows open) and winter months  
33 (windows closed), respectively. These estimates are taken from U.S.  
34 Environmental Protection Agency (EPA) reviews of available data (U.S.  
35 EPA, 1974).

36 Levels of the aircraft noise measured inside dwellings and schools near  
37 the ends of runways at airports may exceed 60 dB inside (75 dB  
38 outside). During flyovers, speech intelligibility would degrade. However,  
39 since the total duration is short, no more than a few seconds during each  
40 flyover, only a few syllables may be lost. People may be annoyed, but  
41 the annoyance may not be due to loss in speech communication, but  
42 rather due to startle or sleep disturbance as discussed below.

### 43 **4.3 SLEEP DISTURBANCE DUE TO NOISE**

44 The effects of noise on sleep have long been a concern of parties  
45 interested in assuring suitable residential noise environments. Early  
46 studies noted background levels in people's bedrooms in which sleep  
47 was apparently undisturbed by noise. Various levels between 25 to 50  
48 dB (A-weighted) were observed to be associated with an absence of

1 sleep disturbance. The bulk of the research on noise effects on which  
2 the current relationship is based was conducted in the 1970s. The tests  
3 were conducted in a laboratory environment in which awakening was  
4 measured either by a verbal response or by a button push, or by brain  
5 wave recordings (EEG) indicating stages of sleep (and awakening).  
6 Various types of noise were presented to the sleeping subjects  
7 throughout the night. These noises consisted primarily of transportation  
8 noises, including those produced by aircraft, trucks, cars and trains. The  
9 aircraft noises included both flyover noises as well as sonic booms.  
10 Synthetic noises, including laboratory-generated sounds consisting of  
11 shaped noises and tone, were also studied.

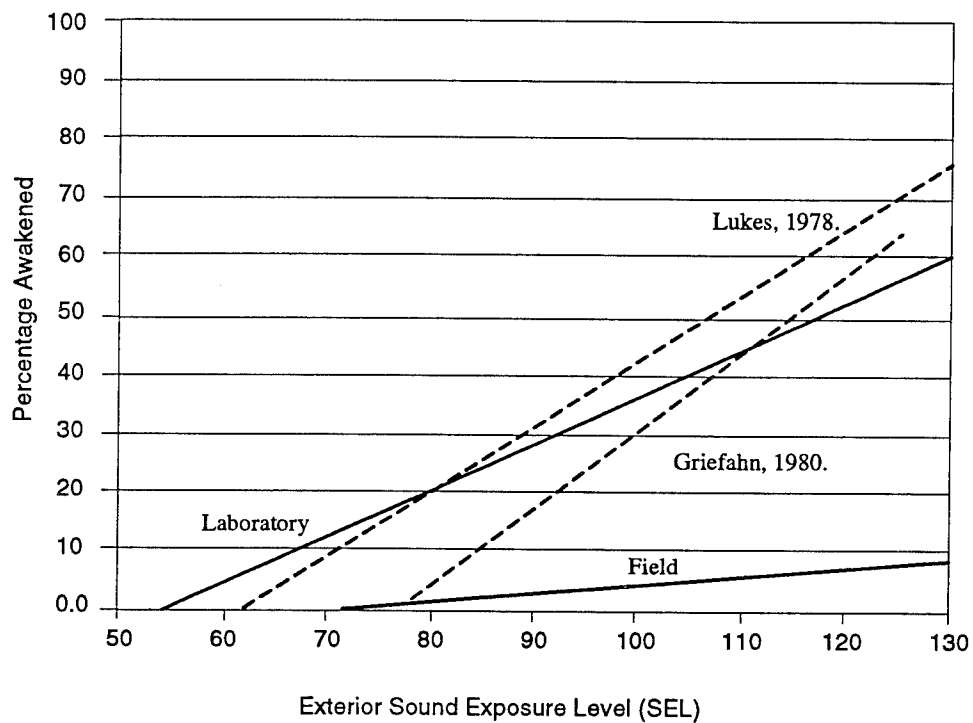
12 Lukas (1975) and Goldstein and Lukas (1980) both reviewed data  
13 available in the 1970s on sleep-stage changes and waking effects of  
14 different levels of noise. Since no known health effects were associated  
15 with either waking or sleep-stage changes, either measure was  
16 potentially useful as a metric of sleep disturbance. However, since  
17 waking, unlike sleep-stage changes, is simple to quantify, it is often  
18 selected as the metric for estimating the effects of noise on sleep.  
19 These two reviews showed great variability in the percentage of people  
20 awakened by exposure to noise. The variability is not merely random  
21 error, but reflects individual differences in adaptation or habituation, and  
22 also interpretation of the meaning of the sounds. Such factors cannot be  
23 estimated from the purely acoustic measures in noise exposure.

24 Another major review, by Griefahn and Muzet (1978), provided similar  
25 information for effects of noise on waking. However, Griefahn and  
26 Muzet's results suggested less waking for a given level of noise than  
27 predicted by Lukas.

28 A recent review (Pearsons et al., 1989) of the literature related to sleep  
29 disturbance demonstrated that the relationship, based exclusively on  
30 laboratory studies, predicts greater sleep disturbance than that likely to  
31 occur in a real-life situation in which some adaptation has occurred. The  
32 prediction relationships developed in this review should not be  
33 considered to yield precise estimates of sleep disturbance because of  
34 the great variability in the data sets from which they were developed.  
35 The relationships include only the duration and level components of  
36 "noise exposure." Increasing the precision of prediction would depend  
37 on quantification of some of the nonacoustic factors. Further, a recent  
38 review of field, as well as laboratory studies, suggests that habituation  
39 may reduce the effect of noise on sleep (Pearsons et al., 1989).

40 Noise must penetrate the home to disturb sleep. Interior noise levels are  
41 lower than exterior levels due to the attenuation of the sound energy by  
42 the structure. The amount of attenuation provided by the building is  
43 dependent on the type of construction and whether the windows are  
44 open or closed. The approximate national average attenuation factors  
45 are 15 dB (decibels) for open windows and 25 dB for closed windows  
46 (U.S. EPA, 1974).

47 Incorporating these attenuation factors, the percent awakened  
48 relationships previously discussed under summer conditions are  
49 presented in Figure H-4. In conclusion, the scientific literature does not



Source: Pearsons, 1989.

## Sleep Disruption (Awakening)

Figure H-4

1 provide a consensus on sleep disturbance. There are no recognized  
2 criteria or standards that provide guidance to assess sleep disturbance  
3 due to noise.

#### 4 4.4 NOISE-INDUCED HEARING LOSS

5 Hearing loss is measured in decibels and refers to the permanent  
6 auditory threshold shift of an individual's hearing in an ear. Auditory  
7 threshold refers to the minimum acoustic signal that evokes an auditory  
8 sensation; i.e., the quietest sound a person can hear. When a threshold  
9 shift occurs a person's hearing is not as sensitive as before and the  
10 minimum sound that a person can hear must be louder. The threshold  
11 shift that naturally occurs with age is called presbycusis. Exposure to  
12 high levels of sound can cause temporary and permanent threshold  
13 shifts, usually referred to as noise-induced hearing loss. Permanent  
14 hearing loss is generally associated with destruction of the hair cells of  
15 the inner ear.

16 The U.S. EPA (1974) and the Committee on Hearing, Bioacoustics, and  
17 Biomechanics (National Academy of Sciences, 1981) have addressed  
18 the risk of outdoor hearing loss. They have concluded that hearing loss  
19 would not be expected for people living outside the noise contour of 75  
20 DNL. Several studies of populations near existing airports in the U.S.  
21 and the U.K. have shown that the possibility for permanent hearing loss  
22 in communities near intense commercial take-off and landing patterns is  
23 remote. An FAA-funded study compared the hearing of the population  
24 near the Los Angeles International Airport to that of the population in a  
25 quiet area away from aircraft noise (Parnell et al., 1972). A similar study  
26 was performed in the vicinity of London Heathrow Airport (Ward et al.,  
27 1972). Both studies concluded that there was no significant difference  
28 between the hearing loss of the two populations, and no correlation  
29 between the hearing level with the length of time people lived in the  
30 airport neighborhood.

#### 31 4.5 NONAUDITORY HEALTH EFFECTS OF RESIDENTIAL AIRCRAFT NOISE

32 Based on summaries of previous research in the field (Thompson, 1981;  
33 Thompson and Fidell, 1989), predictions of nonauditory health effects of  
34 aircraft noise cannot be made. A valid predictive procedure requires: (1)  
35 evidence for causality between aircraft noise exposure and adverse  
36 nonauditory health consequences, and (2) knowledge of a quantitative  
37 relationship between amounts of noise exposure (dose) and specific  
38 health effects. Because results of studies of aircraft noise on health are  
39 equivocal, there is no sound scientific basis for making adequate risk  
40 assessments.

41 Alleged nonauditory health consequences of aircraft noise exposure that  
42 have been studied include birth defects, low birth weight, psychological  
43 illness, cancer, stroke, hypertension, sudden cardiac death, myocardial  
44 infarction, and cardiac arrhythmia. Of these, hypertension is the most  
45 biologically plausible effect of noise exposure. Noise appears to cause  
46 many of the same biochemical and physiological reactions, including  
47 temporary elevation of blood pressure, as do many other environmental  
48 stressors. These temporary increases in blood pressure are believed to



1 lead to a gradual resetting of the body's blood pressure control system.  
2 Over a period of years, permanent hypertension may develop (Peterson  
3 et al., 1984).

4 Studies of residential aircraft noise have produced contradictory results.  
5 Early investigations indicated that hypertension was from two to four  
6 times higher in areas near airports than in areas located away from  
7 airports (Karagodina et al., 1969). Although Meecham and Shaw (1988)  
8 continue to report excessive cardiovascular mortality among individuals  
9 75 years or older living near the Los Angeles International Airport, their  
10 findings cannot be replicated (Freichs et al., 1980). In fact, noise  
11 exposure increased over the years while there was a decline in all  
12 cause, age-adjusted death rates and inconsistent changes in age-  
13 adjusted cardiovascular, hypertension, and cerebrovascular rates.

14 Studies that have controlled for multiple factors have shown no, or a  
15 very weak, association between noise exposure and nonauditory health  
16 effects. This observation holds for studies of occupational and traffic  
17 noise as well as for aircraft noise exposure. In contrast to the early  
18 reports of two-to-six-fold increases in hypertension due to high industrial  
19 noise (Thompson and Fidell, 1989), the more rigorously controlled  
20 studies of Talbott et al. (1985) and van Dijk et al. (1987) show no  
21 association between hypertension and prolonged exposure to high levels  
22 of occupational noise.

23 In the aggregate, studies indicate no association exists between street  
24 traffic noise and blood pressure or other cardiovascular changes. Two  
25 large prospective collaborative studies of heart disease are of particular  
26 interest. To date, cross-sectional data from these cohorts offer  
27 contradictory results. Data from one cohort show a slight increase in  
28 mean systolic blood pressure (2.4 mm Hg) in the noisiest compared to  
29 the quietest area; while data from the second cohort show the lowest  
30 mean systolic blood pressure and highest high-density lipoprotein  
31 cholesterol (lipoprotein protective of heart disease) for men in the  
32 noisiest area (Babisch and Gallacher, 1990). These effects of traffic  
33 noise on blood pressure and blood lipids were more pronounced in men  
34 who were also exposed to high levels of noise at work.

35 It is clear from the foregoing that the current state of technical  
36 knowledge cannot support inference of a causal or consistent  
37 relationship, nor a quantitative dose-response, between residential  
38 aircraft noise exposure and health consequences. Thus, no technical  
39 means are available for predicting extra-auditory health effects of noise  
40 exposure. This conclusion cannot be construed as evidence of no effect  
41 of residential aircraft noise exposure on nonauditory health. Current  
42 findings, taken in sum, indicate only that further rigorous studies are  
43 needed.

#### 44 4.6 DOMESTIC ANIMALS AND WILDLIFE

45 A recent study was published on the effects of aircraft noise on  
46 domestic animals which provided a review of the literature and a review  
47 of 209 claims pertinent to aircraft noise over a period spanning 32 years  
48 (Bowles et al., 1990). Studies since the late 1950s were motivated both  
49 by public concerns about what was at that time a relatively novel

1 technology, supersonic flight, and by claims leveled against the U.S. Air  
2 Force for damage done to farm animals by very low-level subsonic  
3 overflights. Since that time, over 40 studies of aircraft noise and sonic  
4 booms, both in the U.S. and overseas, have addressed acute effects,  
5 including effects of startle responses (sheep, horses, cattle, fowl), and  
6 effects on reproduction and growth (sheep, cattle, fowl, swine), parental  
7 behaviors (fowl, mink), milk letdown (dairy cattle, dairy goats, swine),  
8 and egg production.

9 Most of the studies on the effects of noise on domestic animals have  
10 focused on the relationship between dosages of continuous noise and  
11 effects. Chronic noises are not a good model for aircraft noise, which  
12 lasts only a few seconds, but which is often very startling. The review of  
13 claims suggest that a major source of loss was panic induced in naive  
14 animals.

15 Aircraft noise may have effects because it might trigger a startle  
16 response, a sequence of physiological and behavioral events that once  
17 helped animals avoid predators. There are good dose-response  
18 relations describing the tendency to startle to various levels of noise,  
19 and the effect of habituation on the startle response.

20 The link between startles and serious effects (i.e., effects on  
21 productivity), is less certain. Here, we will define an effect as any  
22 change in a domestic animal that alters its economic value, including  
23 changes in body weight or weight gain, numbers of young produced,  
24 weight of young produced, fertility, milk production, general health,  
25 longevity, or tractability. At this point, changes in productivity are  
26 usually considered an adequate indirect measure of changes in well  
27 being, at least until objective legal guidelines are provided.

28 Recent focus on the effects on production runs counter to a trend in the  
29 literature toward measuring the relation between noise and physiological  
30 effects, such as changes in corticosteroid levels, and in measures of  
31 immune system function. As a result, it is difficult to determine the  
32 relation between dosages of noise and serious effects using only  
33 physiological measures. A literature survey (Kull and Fisher, 1986)  
34 found that the literature is inadequate to document long-term or subtle  
35 effects of noise on animals. No controlled study has documented any  
36 serious accident or mortality in livestock despite extreme exposure to  
37 noise.

#### 38 4.7 LAND USE COMPATIBILITY GUIDELINES

39 Widespread concern about the noise impacts of aircraft noise essentially  
40 began in the 1950s, which saw the major introduction of high-power jet  
41 aircraft into military service. The concern about noise impacts in the  
42 communities around air bases, and also within the air bases themselves,  
43 led the Air Force to conduct major investigations into the noise  
44 properties of jets, methods of noise control for test operations, and the  
45 effects of noise from aircraft operations in communities surrounding air  
46 bases. These studies established an operational framework of  
47 investigation and identified the basic parameters affecting community  
48 response to noise. These studies also resulted in the first detailed

1 procedures for estimating community response to aircraft noise (Stevens  
2 and Pietrasanta, 1957).

3 Although most attention was given to establishing methods of estimating  
4 residential community response to noise (and establishing the conditions  
5 of noise "acceptability" for residential use), community development  
6 involves a variety of land uses with varying sensitivity to noise. Thus,  
7 land planning with respect to noise requires the establishment of noise  
8 criteria for different land uses. This need was met with the initial  
9 development of aircraft noise compatibility guidelines for varied land  
10 uses in the mid-1960s (Bishop, 1964)

11 In residential areas, noise intrusions generate feelings of annoyance on  
12 the part of individuals. Increasing degrees of annoyance lead to the  
13 increasing potential for complaints and community actions (most  
14 typically, threats of legal actions, drafting of noise ordinances, etc.).  
15 Annoyance is based largely upon noise interference with speech  
16 communication, listening to radio and television, and sleep. Annoyance  
17 in the home may also be based upon dislike of "outside" intrusions of  
18 noise even though no specific task is interrupted.

19 Residential land use guidelines have been developed from consideration  
20 of two related factors:

21 (1) Accumulated case history experience of noise complaints  
22 and community actions near civil and military airports;

23 (2) Relationships between environmental noise levels and  
24 degrees of annoyance (largely derived from social surveys  
25 in a number of communities).

26 In the establishment of guidelines for other land uses, the prime  
27 consideration is task interference. For many land uses, this translates  
28 into the degree of speech interference, after taking into consideration the  
29 importance of speech communication and the presence of non-aircraft  
30 noise sources directly related to the specific land use considered. For  
31 some noise-sensitive land uses where any detectable noise signals that  
32 rise above the ambient noise are unwanted (such as music halls),  
33 detectability may be the criterion rather than speech interference.

34 A final factor to be considered in all land uses involving indoor activities  
35 is the degree of noise insulation provided by the building structures. The  
36 land use guideline limits for unrestricted development within a specific  
37 land use assume noise insulation properties provided by typical  
38 commercial building construction. The detailed land use guidelines  
39 may also define a range of higher noise exposure where construction or  
40 development can be undertaken, provided a specified amount of noise  
41 insulation is included in the buildings. Special noise studies, undertaken  
42 by architectural or engineering specialists, may be needed to define the  
43 special noise insulation requirements for construction in these guideline  
44 ranges.

45 Estimates of total noise exposure resulting from aircraft operations, as  
46 expressed in DNL values, can be interpreted in terms of the probable  
47 effect on land uses. Suggested compatibility guidelines for evaluating

1 land uses in aircraft noise exposure areas were originally developed by  
2 the FAA as presented in Section 3.4.4, Noise. Part 150 of the FAA  
3 regulations prescribes the procedures, standards, and methodology  
4 governing the development, submission, and review of airport noise  
5 exposure maps and airport noise compatibility programs. It prescribes  
6 the use of yearly DNL in the evaluation of airport noise environments. It  
7 also identifies those land use types that are normally compatible with  
8 various levels of noise exposure. Compatible or incompatible land use  
9 is determined by comparing the predicted or measured DNL level at a  
10 site with the values given in the table. The guidelines reflect the  
11 statistical variability of the responses of large groups of people to noise.  
12 Therefore, any particular level might not accurately assess an  
13 individual's perception of an actual noise environment.

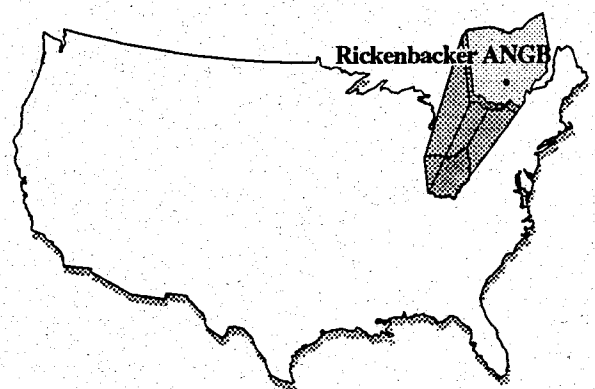
14 While the FAA guidelines specifically apply to aircraft noise, it should be  
15 noted that DNL is also used to describe the noise environment due to  
16 other community noise sources, including motor vehicles and railroads.  
17 The use of DNL is endorsed by the scientific community to assess land  
18 use compatibility as it pertains to noise (ANSI, 1990). Hence, the land  
19 use guidelines presented by the FAA can also be used to assess the  
20 noise impact from community noise sources other than aircraft.

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## APPENDIX I



**APPENDIX I**  
**AIR EMISSIONS INVENTORY**

## APPENDIX I

### AIR EMISSIONS INVENTORY

**Construction Emissions.** Construction activities would generate both combustive emissions from heavy equipment usage and fugitive dust emissions from ground-disturbing activities. Fugitive dust would be generated during construction activities associated with airfield, aviation support, military, industrial, commercial, institutional, residential, and public facilities/recreational land uses. These emissions would be greatest during site clearing and grading activities. Uncontrolled fugitive dust (particulate matter) emissions from ground-disturbing activities are emitted at a rate of 110 pounds per acre per day (U.S. EPA, 1985). The particulate matter equal to or less than 10 microns (PM<sub>10</sub>) portion of the total fugitive dust emissions is assumed to be 50 percent, or 55 pounds per acre per working day.

Construction for the Proposed Action would disturb a total of approximately 101 acres over the first 10-year period of reuse (1994-2004). Approximately 52 and 50 acres would be disturbed from 1994-1999 and 1999-2004, respectively. Assuming that the amount of disturbed area is spread evenly throughout these periods, an average of 10.4 and 10.0 acres per year, respectively, would be disturbed during these time periods. The analysis of fugitive dust emissions from construction activities assumes that on the average there are 230 working days per year (accounting for weekends, weather, and holidays), and that half of these days (115) would be used for site preparation. Additionally, 4 acre-days of disturbance are assumed per acre, which represents the area and duration of ground-disturbing activities. Thus, for the Proposed Action years 1994-1999, the amount of PM<sub>10</sub> emissions are calculated as follows:

#### Average Daily Disturbed Acreage

$$10.4 \text{ acres disturbed/year} \times 4 \text{ acre-days of disturbance/acre} \times 1 \text{ year/115 days} \\ = 0.362 \text{ acres}$$

#### Average Daily PM<sub>10</sub> Emissions

$$0.362 \text{ acres} \times 55 \text{ pounds PM}_{10}/\text{acre-day} = 19.9 \text{ pounds PM}_{10}/\text{day}$$

#### Total Annual PM<sub>10</sub> Emissions

$$19.9 \text{ pounds PM}_{10}/\text{day} \times 115 \text{ days} \times \text{ton}/2000 \text{ lbs} = 1.15 \text{ tons PM}_{10}$$

Therefore, the amount of PM<sub>10</sub> emitted would be 19.9 pounds per day (0.010 ton per day) for 1994-1999. Similarly, 19.1 pounds per day (0.010 ton per day) would be emitted in 1999-2004. These emissions would produce elevated short-term PM<sub>10</sub> concentrations, would be temporary, and would fall off rapidly with distance from the source. Similar calculations for fugitive dust emissions were performed for construction activities related to other alternatives. The results of these PM<sub>10</sub> fugitive dust calculations are summarized in Table I-1.

Construction combustive emissions are estimated using the following pound per acre emission factors.

Pollutant	Pounds Per Acre
CO	3,820
NO <sub>x</sub>	1,095
PM <sub>10</sub>	85
SO <sub>x</sub>	100
VOC	290

Construction combustive emissions associated with each alternative are summarized by time period in Table I-1.

**Table I-1. Construction Fugitive Dust and Combustive Emissions Associated with the Proposed Action and Alternatives (tons/day)**

Pollutant/ Source	Proposed Action <sup>(a)</sup>		Aviation w/ Industrial Park <sup>(b)</sup>		Aviation w/ Mixed Use <sup>(c)</sup>		No Action <sup>(d)</sup>	
	1999	2004	1999	2004	1999	2004	1999	2004
VOC/ Combustive Emissions	0.007	0.006	0.006	0.013	0.004	0.003	0.003	0.002
NO <sub>x</sub> / Combustive Emissions	0.025	0.024	0.022	0.050	0.015	0.013	0.011	0.006
CO/ Combustive Emissions	0.087	0.083	0.076	0.174	0.053	0.046	0.038	0.023
SO <sub>2</sub> / Combustive Emissions	0.002	0.002	0.002	0.005	0.001	0.001	0.001	0.001
PM <sub>10</sub> / Fugitive Dust Emissions	0.010	0.010	0.009	0.020	0.006	0.005	0.004	0.003
PM <sub>10</sub> / Combustive Emissions	0.002	0.002	0.002	0.004	0.001	0.001	0.001	0.001

- Notes:
- (a) Proposed Action emissions based on a total of 52 acres disturbed by construction during the period from 1994-1999, and 50 acres disturbed during the period 1999-2004.
  - (b) Aviation with Industrial Park Alternative emissions based on a total of 46 acres disturbed by construction during the period from 1994-1999, and 105 acres disturbed during the period 1999-2004.
  - (c) Aviation with Mixed Use Alternative emissions based on a total of 32 acres disturbed by construction during the period from 1994-1999, and 28 acres disturbed during the period 1999-2004.
  - (d) No Action Alternative emissions based on a total of 23 acres disturbed by construction during the period from 1994-1999, and 14 acres disturbed during the period 1999-2004

**Aircraft Operations.** Emissions for the following aircraft activities were calculated from fleet mix and operational information inherent to each alternative: touch and go, aircraft queuing, takeoff and landings, and engine run-ups. All aircraft emissions were calculated with the Emissions and Dispersion Modeling System (EDMS) model (Segal, 1991a; b, and c), which contains a built-in data base of EPA AP-42 emission factors for various types of aircraft. EDMS was also used to

1 calculate downwind pollutant concentrations that would occur from  
2 aircraft operations associated with each alternative.

3 **Other Base Operations Emission Calculations.** A pre-realignment  
4 emissions inventory for Rickenbacker ANGB is presented in Table 3.4-  
5 10 of the Draft Environmental Impact Statement (DEIS). Although the  
6 data in Table 3.4-10 provide an adequate estimate of on-base pre-  
7 realignment emissions, they are difficult to compare to emissions from  
8 future reuse scenarios that required calculation by different forecasting  
9 methods (for both direct and indirect emissions). Therefore, to more  
10 adequately compare emissions of all reuse alternatives, pre-realignment  
11 emissions were recalculated by the same method used to calculate the  
12 emissions for each alternative.

13 To calculate emissions from "other base operations" (i.e., all emissions  
14 with the exception of construction fugitive dust, construction combustive  
15 emissions, and aircraft emissions), a per capita approach was used.  
16 Other base operations emissions include emissions from point, area,  
17 non-road mobile, and on-road mobile sources. Data used in the  
18 calculations included population data for the baseline year (1991) and  
19 projections for future years (1994, 1999, and 2004), and Franklin County  
20 point-, area-, and mobile-source emissions of volatile organic  
21 compounds (VOC), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), sulfur  
22 dioxide (SO<sub>2</sub>), and PM<sub>10</sub> for the year 1990. (Note: Year 1985 area-  
23 source data were used for CO, and year 1985 area- and mobile-source  
24 data were used for SO<sub>2</sub> and PM<sub>10</sub> since these were the latest inventory  
25 data available for those pollutants.) The Franklin County emissions  
26 inventory data were obtained from the Ohio EPA and are assumed to be  
27 representative of year 1991 emissions in the County.

28 For the pre-realignment scenario, total 1990 County emissions of each  
29 criteria pollutant (excluding construction and aircraft sources) were  
30 divided by the total year 1990 County population to derive a pre-  
31 realignment per capita emission factor. This factor was then multiplied  
32 by the total site-related pre-realignment population to generate other  
33 base operation emissions under pre-realignment conditions. Site-related  
34 population includes the following on- or off-base personnel associated  
35 with Rickenbacker ANGB: (1) military personnel and their dependents,  
36 (2) direct civilian employees and their dependents, and (3) secondary  
37 civilian employees and their dependents (see Table I-2).

38 The same methodology used to generate other base operation  
39 emissions for pre-realignment was used for the reuse alternatives for the  
40 pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>. Per-capita emission factors for  
41 these pollutants were assumed to remain constant at 1990 levels for  
42 future years. For VOC emissions, the per-capita factors for future years  
43 were based on VOC emission projections contained in the Franklin  
44 County Air Quality Redesignation Request. The projected VOC  
45 inventory amounts were divided by future County population projections  
46 to derive the per capita factors. All per capita pollutant emission factors  
47 were multiplied by the site-related populations associated with each  
48 reuse alternative to obtain the total other base operations emissions  
49 under each alternative. Site-related population for reuse includes the  
50 direct and secondary employees and their dependents that are  
51 associated with the reuse alternative.

**Table I-2. Total Site-Related Population Used to Derive Other Base Operation Emissions.**

	<u>Total Population</u>
Pre-realignment	
1991	9,370
Realignment	
1994	5,750
Proposed Action	
1999	7,451
2004	8,628
Aviation with Industrial Park Alternative	
1999	7,335
2004	14,843
Aviation with Mixed Use Alternative	
1999	7,713
2004	8,928
No Action Alternative	
1999	5,750
2004	5,750

Population projections for Franklin County used to generate future project per capita factors were obtained from the Ohio Data Users Center (1993).

The total other base operations emissions of VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub> for each reuse alternative are presented in Tables I-3 through I-7. Emission categories for each reuse alternative include aircraft operations, construction, and other base operations.

**New Federal Clean Air Act Mandates.** The 1990 amendments to the Clean Air Act require that revised State Implementation Plans (SIPs) be developed for all ozone nonattainment areas. Additional control measures contained in the SIPs must be sufficient to demonstrate that the ozone standard will be achieved by a specified deadline, depending upon the nonattainment classification for the area. For an area such as Franklin County, which is part of an area designated as in "marginal" nonattainment, the ozone standard was to have been achieved by November 15, 1993. However, an Air Quality Redesignation Request has been submitted by the State of Ohio to the U.S. EPA to change the status of Franklin, Delaware, and Licking counties to attainment (MORPC, 1993). The request is based on monitoring data evidence and projections of decreased VOC emissions in future years, which indicate that the counties are no longer in nonattainment of ozone standards and will be able to maintain attainment status in future years.

**Table I-3. Rickenbacker ANGB - Emissions Inventory for Volatile Organic Compounds (tons/day)**

Source	Pre- Realignment 1991 2,562	Realignment 1994 2,140	Proposed Action		Aviation w/Ind. Park		Aviation w/Mixed Use		No Action	
			1999 2,347	2004 2,572	1999 2,347	2004 2,572	1999 2,131	2004 2,120	1999 2,131	2004 2,120
Operations	N/A	N/A	0.007	0.006	0.006	0.013	0.004	0.003	0.003	0.002
Construction										
Other Base	1,582	0.947	1,140	1,251	1,123	2,153	1,181	1,295	0.880	0.834
Operations	4,143	3,087	3,494	3,830	3,475	4,738	3,315	3,418	3,014	2,955
Total										

**Table I-4. Rickenbacker ANGB - Emissions Inventory for Oxides of Nitrogen (tons/day)**

Source	Pre- Realignment 1991 1,038	Realignment 1994 1,038	Proposed Action		Aviation w/Ind. Park		Aviation w/Mixed Use		No Action	
			1999 2,080	2004 2,581	1999 2,080	2004 2,581	1999 1,109	2004 1,183	1999 1,109	2004 1,183
Operations	N/A	N/A	0.025	0.024	0.022	0.050	0.015	0.013	0.011	0.006
Construction										
Other Base	1,311	0.805	1,043	1,207	1,026	2,077	1,079	1,249	0.805	0.805
Operations	2,349	1,842	3,148	3,813	3,129	4,708	2,203	2,445	1,924	1,994
Total										

**Table I-5. Rickenbacker ANGB - Emissions Inventory for Carbon Monoxide (tons/day)**

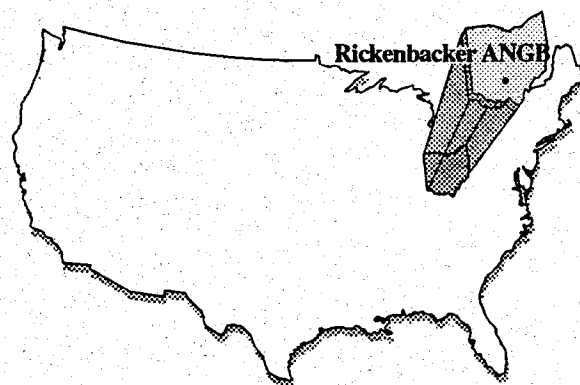
Source	Pre- Realignment 1991 3,386	Realignment 1994 3,808	Proposed Action		Aviation w/Ind. Park		Aviation w/Mixed Use		No Action	
			1999 4,923	2004 6,931	1999 4,923	2004 6,931	1999 3,884	2004 3,983	1999 3,884	2004 3,983
Operations	N/A	N/A	0.087	0.083	0.076	0.174	0.053	0.046	0.038	0.023
Construction										
Other Base	5,215	3,200	4,147	4,802	4,082	8,261	4,293	4,969	3,200	3,200
Operations	8,601	7,008	9,156	11,816	9,081	15,366	8,229	8,998	7,122	7,206
Total										

Table I-6. Rickenbacker ANGB - Emissions Inventory for Sulfur Dioxide (tons/day)

Source	Pre- Realignment 1991 0.080	Realignment 1994 0.078	Proposed Action		Aviation w/Ind. Park		Aviation w/Mixed Use		No Action	
			1999	2004	1999	2004	1999	2004	1999	2004
Aircraft Operations			0.138	0.170	0.138	0.170	0.081	0.085	0.081	0.085
Construction	N/A	N/A	0.002	0.002	0.002	0.005	0.001	0.001	0.001	0.001
Other Base Operations	0.256	0.157	0.204	0.236	0.201	0.406	0.211	0.244	0.157	0.157
Total	0.337	0.236	0.344	0.409	0.340	0.581	0.294	0.330	0.240	0.243

Table I-7. Rickenbacker ANGB - Emissions Inventory for Particulate Matter (tons/day)

Source	Pre- Realignment 1991 0.095	Realignment 1994 0.045	Proposed Action		Aviation w/Ind. Park		Aviation w/Mixed Use		No Action	
			1999	2004	1999	2004	1999	2004	1999	2004
Aircraft Operations			0.064	0.080	0.064	0.080	0.044	0.044	0.044	0.044
Construction	N/A	N/A	0.012	0.011	0.010	0.024	0.007	0.006	0.005	0.003
Other Base Operations	0.621	0.381	0.494	0.571	0.486	0.983	0.511	0.591	0.381	0.381
Total	0.716	0.426	0.569	0.663	0.560	1.087	0.563	0.642	0.430	0.428



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## APPENDIX J



**APPENDIX J**

**AIR QUALITY IMPACTS DISCUSSIONS**

## APPENDIX J

### AIR QUALITY IMPACTS DISCUSSIONS

#### 4.4.3.1. Proposed Action.

**Construction.** Fugitive dust would be generated during the construction in airfield, aviation support, military, and industrial land use areas proposed as part of this alternative. These emissions would be greatest during site clearing and grading activities. Uncontrolled fugitive dust (particulate matter) emissions from ground-disturbing activities are estimated to be emitted at a rate of 1.2 tons per acre per month, or 110 pounds per acre per working day (U.S. EPA, 1985). The PM<sub>10</sub> fraction of the total fugitive dust emissions is assumed to be 50 percent, or 55 pounds per acre per working day.

Construction activities would disturb a total of 102 acres in the first ten years of reuse (1994-2004), with an average disturbance of 0.36 acres per day from 1994 to 1999 and 0.35 acres per day from 1999 to 2004. The amount of PM<sub>10</sub> generated would be 19.9 pounds (0.010 ton) per day from 1994 to 1999 and 19.1 pounds (0.010 ton) per day from 1999 to 2004. Based on the assumption that 115 days per year are used for site preparation, total fugitive PM<sub>10</sub> emissions from construction activity would be 1.15 tons and 1.10 tons per year for the same two time periods, respectively. The impact of these PM<sub>10</sub> emissions would cause elevated short-term concentrations at receptors located close to the construction areas. However, the elevated concentrations would be temporary and would fall off rapidly with distance from the site.

Combustive emissions from construction equipment associated with the new development activities are calculated based on average emission factors and the amount of land to be developed per time interval. For each acre of land developed, 3,820 lbs of CO, 1,095 lbs of NO<sub>x</sub>, 85 lbs of PM<sub>10</sub>, 290 lbs of VOC, and 100 lbs of SO<sub>x</sub> would be emitted from construction equipment. The total combustive emissions due to construction would be 19.90 tons per year of CO, 5.71 tons per year of NO<sub>x</sub>, 0.44 ton per year of PM<sub>10</sub>, 1.51 tons per year of VOC, and 0.52 ton per year of SO<sub>x</sub> during the time period from 1994 to 1999. Based on the assumption that construction equipment is active 230 days per year, the daily combustive emissions in the period would be 0.087, 0.025, 0.002, 0.007, and 0.002 ton per day for the same pollutants, respectively. Emissions of CO, NO<sub>x</sub>, PM<sub>10</sub>, VOC, and SO<sub>x</sub> in the period from 1999 to 2004 would be 19.10 tons per year (0.083 tons per day), 5.48 tons per year (0.024 tons per day), 0.43 tons per year (0.002 tons per day), 1.45 tons per year (0.006 tons per day), and 0.50 tons per year (0.002 tons per day), respectively.

**Operations.** A summary of construction and operation emissions for the Proposed Action is presented in Table 4.4-1 for the years 1999 and 2004. Fugitive dust and construction combustive emissions were calculated as

described above. Aircraft operation emissions were calculated using the EDMS model. Estimates for all other categories of emissions were calculated using the methodologies described in Appendix I.

**Table 4.4-1. Emissions Associated with the Proposed Action (tons/day)**

Pollutant	Franklin County <sup>(a)</sup>	Base-Related Emissions <sup>(b)</sup>		Reuse Related Emissions <sup>(b,c)</sup>	
	1990	Pre- Realignment	Realignment	1999	2004
		1991	1994		
VOC	162.3	4.14	3.09	3.49	3.83
NO <sub>x</sub>	134.5	2.35	1.84	3.15	3.81
CO	535.1	8.60	7.01	9.16	11.82
SO <sub>2</sub>	26.3	0.34	0.24	0.34	0.41
PM <sub>10</sub>	63.7	0.72	0.43	0.57	0.66

Notes: <sup>(a)</sup> Emissions are from Ohio EPA.

<sup>(b)</sup> Emissions are total emissions from both direct and indirect sources, as described in Appendix I.

<sup>(c)</sup> Future year emissions include both construction and operation emissions.

Potential impacts to air quality as a result of operational emissions from the Proposed Action were evaluated in terms of two spatial scales: regional and local. The regional-scale analysis considered the potential for total reuse-related emissions to affect the achievement and maintenance of attainment of the federal ozone standard (VOC and NO<sub>x</sub> emissions), or cause large increases in the regional pollutant inventories (NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub> emissions). The local-scale analysis evaluated the potential for aircraft emissions to exceed the NAAQS in the immediate vicinity of the base. If one of these conditions were to occur, the Proposed Action would have an adverse impact on air quality.

**Regional Scale.** Emissions of ozone precursors from the Proposed Action would contribute to regional ozone levels. However, it is not expected that the Proposed Action would delay regional progress toward attainment of the ozone standard.

**Ozone Precursors.** Table 4.4-1 provides a comparison of emission estimates for Franklin County in 1990, the total pre-realignment and realignment emissions associated with Rickenbacker ANGB (base-related emissions), and the reuse-related emissions. Base-related emissions include the direct emissions at Rickenbacker ANGB as well as the indirect emissions associated with the base under pre-realignment and realignment conditions. Similarly, the reuse-related emissions include both direct and indirect emissions associated with the Proposed Action. Table 4.4-1 shows that, although the total reuse-related emissions of VOC would increase from realignment conditions by 0.74 tons/day

1 in 2004, the emissions would remain below pre-realignment levels throughout  
2 the 10-year analysis period. By 2004, the total reuse-related VOC emissions  
3 would be only 93 percent of the total pre-realignment VOC emissions associated  
4 with Rickenbacker ANGB. By 2004, reuse-related emissions of NO<sub>x</sub> would  
5 increase by 1.97 tons/day over realignment conditions. Total reuse-related  
6 emissions of NO<sub>x</sub> in the year 2004 would be approximately 162 percent of the  
7 pre-realignment level of NO<sub>x</sub> emissions associated with Rickenbacker ANGB.

8 The objective of the CAAA is to bring the region into attainment through the  
9 reduction of VOC and NO<sub>x</sub> emissions. Because of the reduced level of VOC  
10 emissions associated with the Proposed Action compared to pre-realignment  
11 conditions (primarily aircraft operation emission reductions) VOC emissions  
12 would not interfere with the attainment of the ozone standard. Increased NO<sub>x</sub>  
13 emissions could potentially interfere with the attainment of the ozone standard.  
14 However, the Franklin County ozone attainment status redesignation request has  
15 relied on VOC emission reductions as being sufficient to maintain attainment.  
16 Small ton per day increases of NO<sub>x</sub> emissions therefore are not expected to  
17 interfere with attainment. However, should VOC emission reductions alone  
18 prove to be insufficient, an I/M program would be implemented to further reduce  
19 both VOC and NO<sub>x</sub> (MORPC, 1993).

20 **NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>.** Table 4.4-1 provides a means to compare emissions  
21 related to the Proposed Action to 1990 Franklin County emissions and  
22 base-related pre-realignment and realignment emission levels. All NO<sub>x</sub>  
23 emissions in Table 4.4-1 are assumed to convert to NO<sub>2</sub> emissions on a regional  
24 basis.

25 Direct and indirect reuse-related emissions of NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>  
26 associated with the Proposed Action would increase by 1.97 tons/day, 4.81  
27 tons/day, 0.17 tons/day, and 0.23 tons/day, respectively, over realignment  
28 conditions. In 2004, total emissions of NO<sub>2</sub>, CO, SO<sub>2</sub> and PM<sub>10</sub> would represent  
29 162, 137, 121, and 92 percent, respectively, of the 1991 pre-realignment  
30 emissions related to Rickenbacker ANGB. Measured ambient concentrations  
31 and estimated background values for CO, SO<sub>2</sub>, and PM<sub>10</sub> (as shown previously  
32 in Tables 3.4-6 and 3.4-7) indicate that good air quality conditions for these  
33 pollutants exist in the area of Rickenbacker ANGB. Likewise, good air quality  
34 conditions exist for NO<sub>2</sub>. NO<sub>2</sub> has never been a problem in the area and is not  
35 monitored. Air quality impacts from the increased reuse-related emissions of  
36 these primary pollutants are therefore not expected to be sufficient to affect  
37 maintenance of the current attainment status of the respective pollutant  
38 standards.

39 **Local Scale.** A summary of the EDMS analysis for the Proposed Action is  
40 presented in Table 4.4-2. The modeling results show that during peak hours of  
41 airport operation, the maximum pollutant concentrations would occur at a  
42 receptor located along the centerline of the runway at the base boundary  
43 (approximately 940 feet from the NE end of runway 05R/23L), assuming a wind  
44 direction parallel to the runway. The primary contributing factor at this location  
45 would be aircraft exhaust emitted during takeoffs. The modeling results indicate

that the maximum concentrations when added to representative background concentrations would not exceed the NAAQS in the area surrounding the airport. Emissions from airport activities under the Proposed Action would, therefore, have no adverse impact on the local air quality.

**Mitigation Measures.** Air quality impacts during construction would occur from fugitive dust emissions from ground-disturbing activities, and from combustion emissions emitted by construction equipment. Application of water during ground-disturbing activities is estimated to reduce fugitive dust emissions by at least 50 percent (U.S. EPA, 1985). Other measures such as reducing vehicle speeds and paving dirt roads could reduce dust emissions as well. Combustion emission impacts could be mitigated by efficient scheduling of equipment use, reducing the number of units operating simultaneously, and performing regular vehicle engine maintenance. Implementation of these measures would substantially reduce air quality impacts from construction activities associated with the Proposed Action.

**Table 4.4-2. Air Quality Modeling Results for Airport Operations Associated with the Proposed Action (ug/m<sup>3</sup>)**

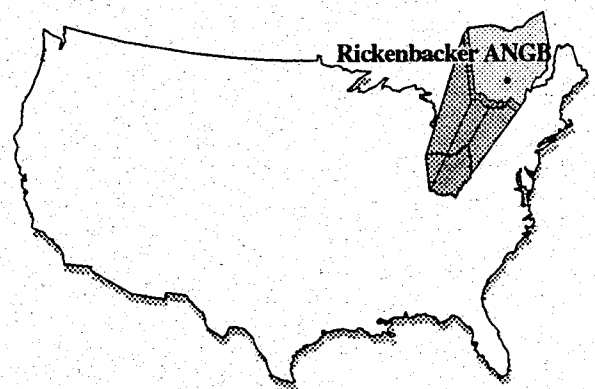
Pollutant	Averaging Time	Reuse-Related Impact <sup>(a)</sup>			Background Conc. <sup>(b)</sup>	NAAQS <sup>(c)</sup>
		Pre-Realignment 1991	1999	2004		
PM <sub>10</sub>	Annual	11	8	9	25	50
	24-hour	44	33	36	81	150
SO <sub>2</sub>	Annual	9	15	18	17	80
	24-hour	36	60	74	93	365
	3-hour	91	149	184	233	1,300
CO	8-hour	973	1,106	1,288	7,705	10,000
	1-hour	1,390	1,580	1,840	9,975	40,000

Notes: <sup>(a)</sup> Projected pollutant concentrations determined from EDMS modeling results.

<sup>(b)</sup> Background concentrations provided by Ohio EPA (personal communication, Engler 1994).

<sup>(c)</sup> Impacts are determined by comparing the aggregate of the reuse-related impact and background concentration to the NAAQS.

The modeling results in Table 4.4-2 show that localized project impacts would not be adverse. Mitigation of these impacts would, therefore, not be required. Additional mitigation of regional ozone impacts would not be required, since the Proposed Action VOC emissions in future years would be lower than pre-realignment levels.



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## APPENDIX K

## **APPENDIX K**

### **INFLUENCING FACTORS AND ENVIRONMENTAL IMPACTS BY LAND USE CATEGORY**

## APPENDIX K

### INFLUENCING FACTORS AND ENVIRONMENTAL IMPACTS BY LAND USE CATEGORY

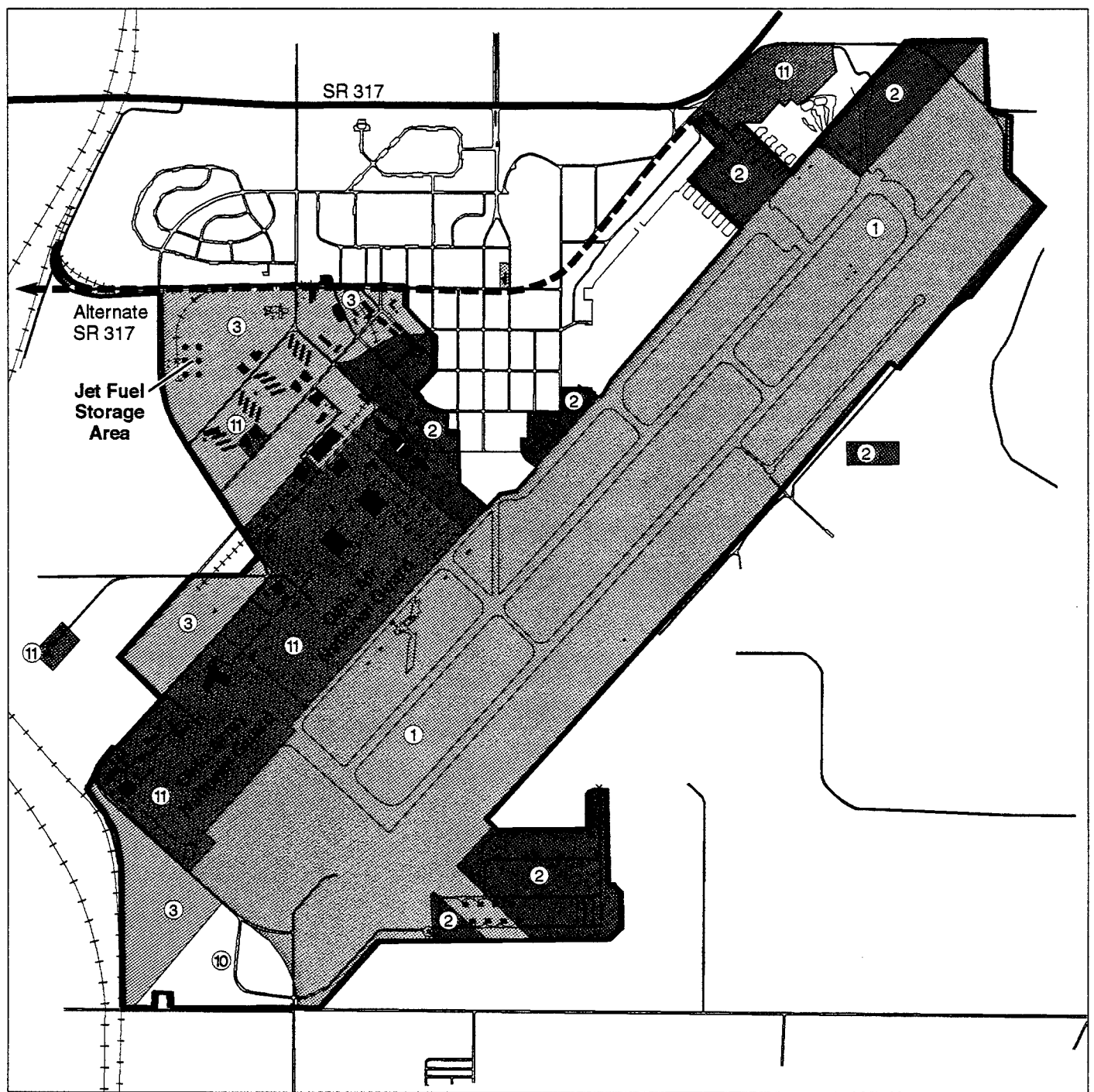
The purpose of this appendix is to quantify the environmental impacts of each land use category identified for the four alternatives, including the Proposed action, evaluated in the Environmental Impact Statement (EIS) (Figures K-1 through K-3). The data in Tables K-1 through K-22 present the impacts of individual land use activities within the study area, such as industrial, commercial, or institutional, on their respective Regions of Influence as well as compare the impacts of the Proposed Action and alternatives for three benchmark years, 1999, 2004, and 2014 where applicable.

Tables K-1 through K-4 present data on the influencing factors (factors that drive environmental impacts); Tables K-5 through K-22 list the impacts on individual environmental resources evaluated in the EIS. These resources include transportation, utilities, hazardous materials and hazardous waste management, soils and geology, water resources, air quality, noise, biological resources, and cultural resources. Included in this appendix is at least one table for each resource area, except water resources. Data on water demand are presented as part of the utilities analysis; the effects on surface and groundwater resources in and around the base have not been quantified in the EIS and have not been disaggregated in the appendix.

No quantification is provided in Table K-11 because the quantifies of hazardous materials used and hazardous wastes generated will depend on the type and intensity of industrial and commercial activities developed on the site. Table K-11 presents a generalized description of the hazardous materials used under individual land use categories. Table K-12 summarizes the number of Installation Restoration Program (IRP) sites identified on the base as of 1994, but does not give the likely status of these sites in 1999, 2004, and 2014. It is expected that most of the sites will be remediated by the first benchmark year, 1999.

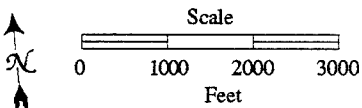
A number of factors and assumptions were used in disaggregating the total impacts of an alternative to individual land use categories. These are presented as footnotes on the relevant tables.





# EXPLANATION

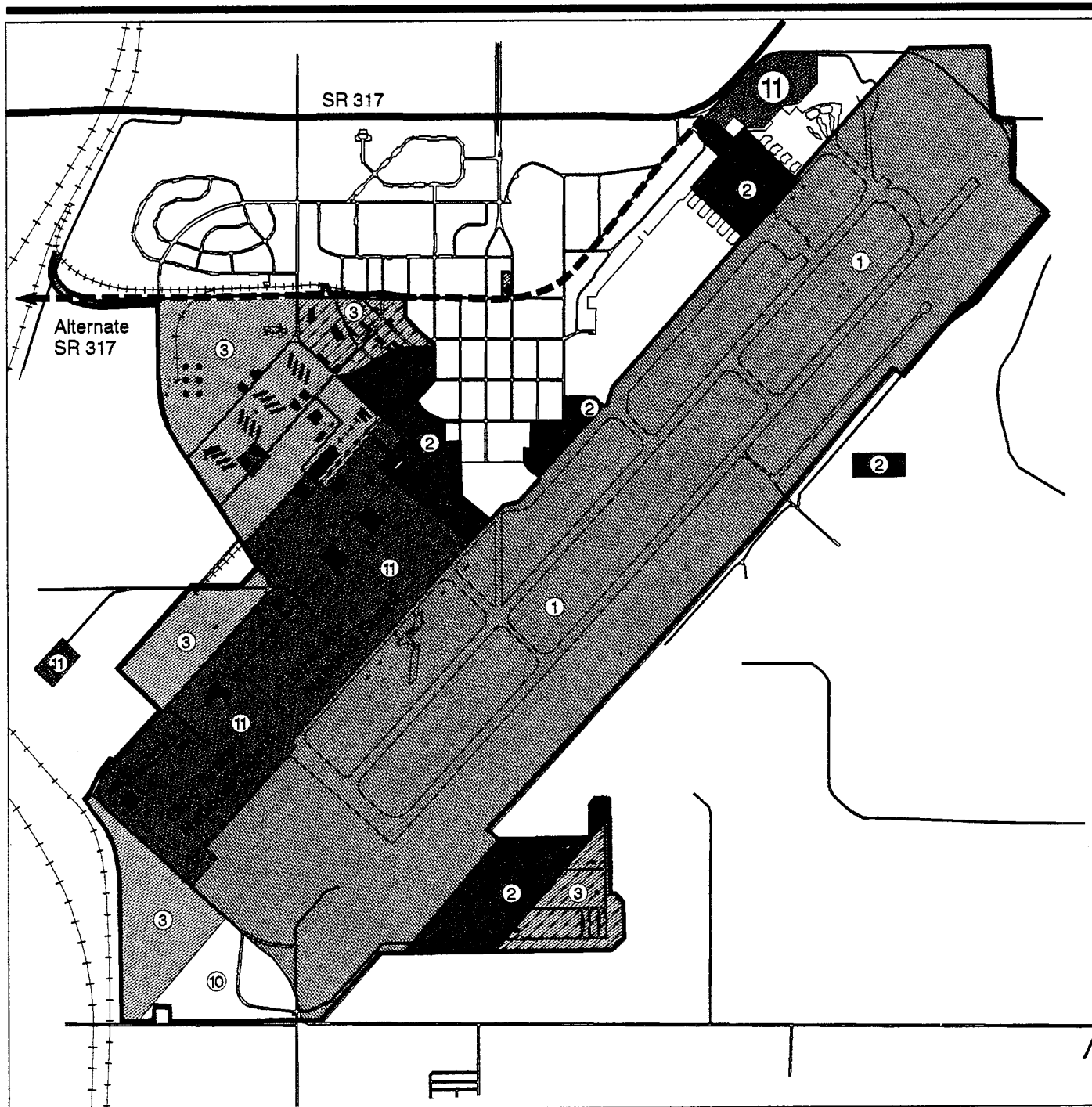
- |                              |                              |
|------------------------------|------------------------------|
| 1 Airfield                   | 6 *Commercial                |
| 2 Aviation Support           | 7 *Residential               |
| 3 Industrial                 | 8 *Public/Recreation         |
| 3 *Industrial - Warehousing  | 9 *Agriculture               |
| 4 *Institutional (Medical)   | 10 Vacant Land               |
| 6 *Institutional (Education) | 11 Military                  |
|                              | — Rickenbacker ANGB Boundary |



\* Not Applicable

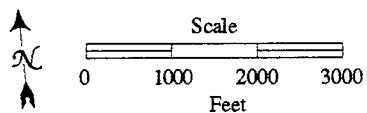
## Land Use Parcels Proposed Action

Figure K-1



#### EXPLANATION

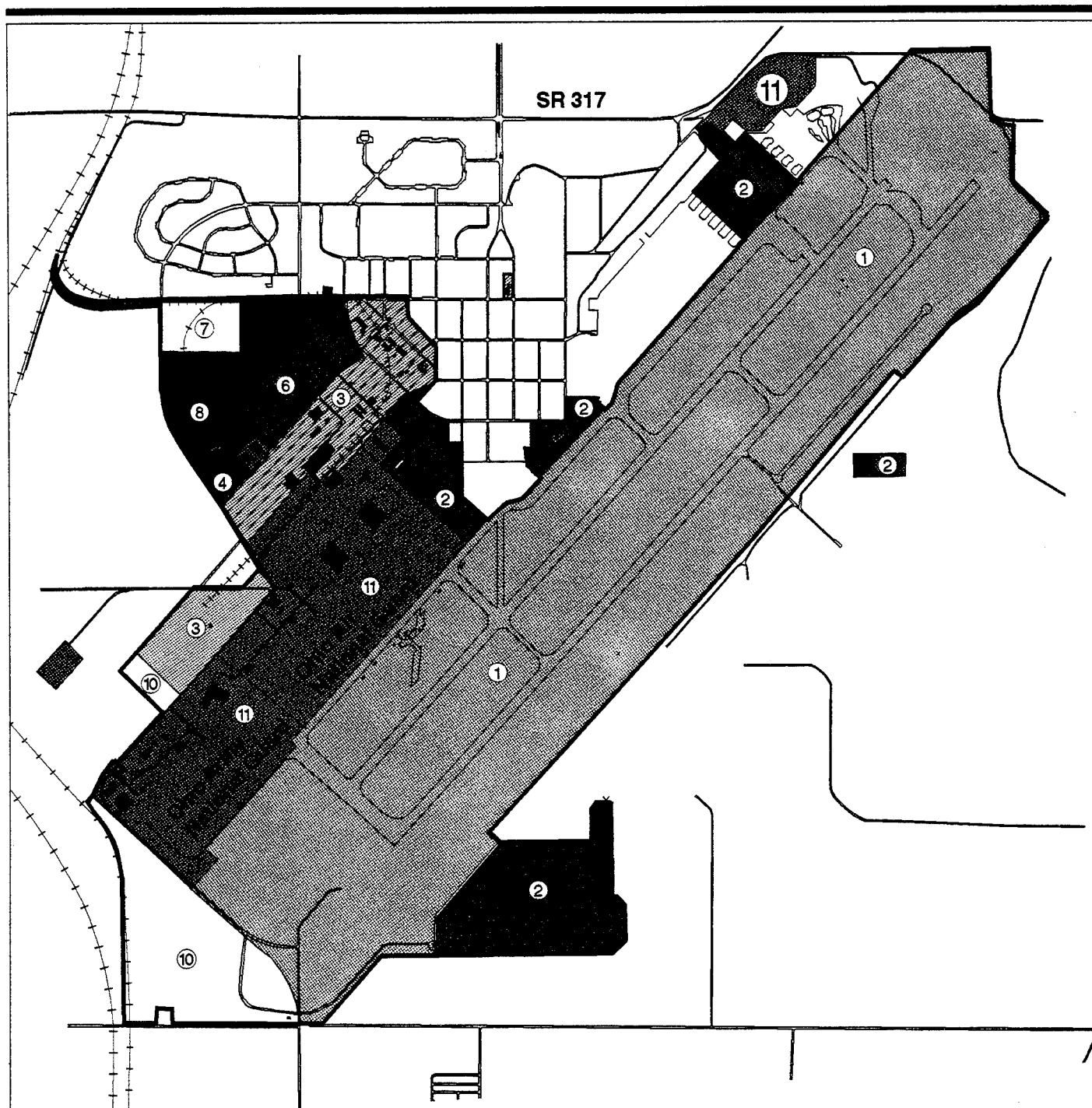
- |                                     |                              |
|-------------------------------------|------------------------------|
| <b>1</b> Airfield                   | <b>6</b> *Commercial         |
| <b>2</b> Aviation Support           | <b>7</b> *Residential        |
| <b>3</b> Industrial - General       | <b>8</b> *Public/Recreation  |
| <b>3</b> Industrial - Warehousing   | <b>9</b> *Agriculture        |
| <b>4</b> *Institutional (Medical)   | <b>10</b> Vacant Land        |
| <b>5</b> *Institutional (Education) | <b>11</b> Military           |
|                                     | — Rickenbacker ANGB Boundary |



\* Not Applicable

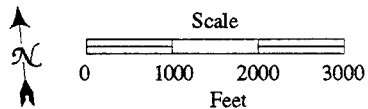
#### Land Use Parcels Aviation with Industrial Park Alternative

**Figure K-2**



#### EXPLANATION

- |                              |                              |
|------------------------------|------------------------------|
| ① Airfield                   | ⑥ Commercial                 |
| ② Aviation Support           | ⑦ Residential                |
| ③ Industrial - General       | ⑧ Public/Recreation          |
| ④ Industrial - Warehousing   | ⑨ *Agriculture               |
| ⑤ Institutional (Medical)    | ⑩ Vacant Land                |
| ⑤ *Institutional (Education) | ⑪ Military                   |
|                              | — Rickenbacker ANGB Boundary |



\* Not Applicable

#### Land Use Parcels Aviation with Mixed-Use Alternative

Figure K-3

Table K-1. Direct Employment by Land Use Category, Rickenbacker AFB Reuse

Land Use Category	1999*			2004			2014					
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	29	29	29	3	52	52	32	6	102	102	38	12
Aviation Support	272	267	124	0	561	551	160	0	662	679	199	0
Military**	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297	3,297
Industrial	111	110	160	0	100	1,618	290	0	3,297	3,200	780	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	17	0	0	0	35	0	0	0	16	0
Institutional	29	0	92	0	29	0	173	0	0	0	173	0
Public Recreation	0	0	59	0	0	0	70	0	0	0	70	0
Caretaker	0	0	0	15	0	0	0	5	0	0	0	5
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,737	3,703	3,778	3,315	4,039	5,518	4,057	3,308	7,358	7,278	4,573	3,314

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

\*Includes realignment baseline employment

\*\*Includes full-time and part-time jobs held by Ohio Army and Ohio Air national Guard.

Table K-2. Total Employment by Land Use Category, Rickenbacker AFB Reuse

Land Use Category	1999*				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	63	63	61	3	106	97	64	5	186	184	71	12
Aviation Support	584	580	267	0	1,168	1,039	349	0	1,253	1,277	439	0
Military	3,708	3,708	3,708	3,708	3,707	3,707	3,707	3,707	3,709	3,709	3,709	3,709
Industrial	219	221	391	0	234	3,740	724	0	7,512	7,327	1,959	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	17	0	0	0	35	0	0	0	16	0
Institutional	62	0	183	0	60	0	354	0	0	0	358	0
Public Recreation	0	0	126	0	0	0	154	0	0	0	155	0
Caretaker	0	0	0	15	0	0	0	5	0	0	0	5
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,636	4,572	4,753	3,726	5,277	8,583	5,387	3,718	12,660	12,497	6,710	3,726

Note: Total employment includes direct and secondary employment.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-3. Population In-migration by Land Use Category, Rickenbacker AFB Reuse

Land Use Category	1999*				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	3	3	4	0	6	7	4	0	13	12	5	0
Aviation Support	30	30	15	0	62	65	19	0	81	82	25	0
Military	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	11	11	19	0	13	184	35	0	383	377	96	0
Commercial	0	0	0	0	0	0	0	0	0	0	0	0
Residential	0	0	0	0	0	0	1	0	0	0	1	0
Institutional	3	0	11	0	3	0	21	0	0	0	22	0
Public Recreation	0	0	7	0	0	0	8	0	0	0	9	0
Caretaker	0	0	0	0	0	0	0	0	0	0	0	0
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	47	44	56	0	84	256	87	0	477	471	158	0

P.A. = Proposed Action  
 Alt. 1 = Aviation with Industrial Park  
 Alt. 2 = Aviation with Mixed Use  
 N.A. = No-Action

Table K-4. Land Use Impacts by Land Use Category, Rickenbacker AFB Reuse (acres of absorption)

Land Use Category	1999				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	1,112	1,148	1,156	1,265	1,112	1,148	1,156	1,265	1,112	1,148	1,148	1,265
Aviation Support	27	27	26	9	59	59	35	9	78	78	45	9
Military	134	134	134	134	134	134	134	134	147	147	147	147
Industrial	8	8	4	0	8	74	9	0	165	164	20	0
Commercial	0	0	5	0	0	0	7	0	0	0	15	0
Residential	0	0	4	0	0	0	12	0	0	0	17	0
Institutional	0	0	4	0	0	0	7	0	0	0	7	0
Public Recreation <sup>(a)</sup>	0	0	4	0	0	0	49	0	0	0	49	0
Caretaker	0	0	0	402	0	0	0	402	0	0	0	402
Vacant <sup>(b)</sup>	735	709	635	206	703	601	607	206	514	480	561	193
Total	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016	2,016

<sup>(a)</sup>Includes about 44 acres for landscaped park.

<sup>(b)</sup>Includes vacant and developed land that has not been absorbed, and vacant land that is not developable.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-5. Transportation Impacts by Land Use Category, Rickenbacker AFB Reuse (Total Daily Trips)

Land Use Category	1999*				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	58	58	58	58	104	104	64	64	204	204	76	76
Aviation Support	1,687	1,666	826	133	3,514	3,500	1,078	133	4,452	4,571	1,344	133
Military	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Industrial	446	446	219	0	482	3,272	414	0	7,031	6,996	841	0
Commercial	8	0	283	0	8	0	565	0	0	0	1,988	0
Residential	20	0	889	0	20	0	1,656	0	0	0	2,138	0
Institutional	0	0	314	0	0	0	629	0	0	0	629	0
Public/Recreation	266	0	925	0	266	0	1,012	0	0	0	1,012	0
Caretaker	0	0	0	26	0	0	0	9	0	0	0	9
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	4,285	3,970	5,314	2,017	6,194	8,676	7,218	2,006	13,487	13,571	9,828	2,018

P.A. = Proposed Action  
 Alt. 1 = Aviation with Industrial Park  
 Alt. 2 = Aviation with Mixed Use  
 N.A. = No-Action



Table K-6. Water Consumption by Land Use Category, Rickenbacker AFB Reuse (gallons per day)

Land Use Category	1999				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	725	725	725	725	1,300	1,300	800	800	2,550	2,550	950	950
Aviation Support	6,021	5,946	2,938	475	12,546	12,487	3,829	475	15,885	16,308	4,783	475
Military	25,275	25,275	25,275	25,275	25,275	25,275	25,275	25,275	25,275	25,275	25,275	25,275
Industrial	1,157	1,148	1,423	0	1,507	28,189	2,452	0	59,061	58,694	4,716	0
Commercial	0	0	11,402	0	0	0	16,776	0	0	0	31,593	0
Residential	36,000	0	7,796	0	36,000	0	23,388	0	0	0	31,184	0
Institutional	9,600	0	15,624	0	9,600		31,248	0	0	0	31,248	0
Public/Recreation	11,500	0	17,431	0	11,500	0	20,575	0	0	0	20,575	0
Caretaker	0	0	0	375	0	0	0	125	0	0	125	125
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	90,278	33,094	73,890	26,850	97,728	67,251	124,343	26,625	102,772	102,827	150,324	26,825

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-7. Wastewater Generation by Land Use Category, Rickenbacker AFB Reuse (gallons per day)

Land Use Category	1999				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	609	609	609	609	1,092	1,092	672	672	2,142	2,142	798	798
Aviation Support	5,057	4,995	2,468	399	10,538	10,489	3,216	399	13,344	13,699	4,018	399
Military	21,231	21,231	21,231	21,231	21,231	21,231	21,231	21,231	21,231	21,231	21,231	21,231
Industrial	926	918	1,187	0	1,223	23,903	2,034	0	49,970	49,659	3,897	0
Commercial	0	0	8,884	0	0	0	2,698	0	0	0	22,000	0
Residential	30,000	0	6,496	0	30,000	0	19,490	0	0	0	25,987	0
Institutional	8,000	0	13,671	0	8,000	0	37,389	0	0	0	39,900	0
Public Recreation	9,125	0	13,573	0	9,125	0	15,931	0	0	0	15,931	0
Caretaker	0	0	0	315	0	0	0	105	0	0	0	105
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	74,948	27,753	68,119	22,554	81,209	56,715	102,661	22,407	86,687	86,731	112,426	22,533

P.A. = Proposed Action  
 Alt. 1 = Aviation with Industrial Park  
 Alt. 2 = Aviation with Mixed Use  
 N.A. = No-Action

Table K-8. Solid Waste Disposal by Land Use Category, Rickenbacker AFB Reuse (pounds per year)

Land Use Category	1999					2004					2014				
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2
Airfield	31,755	31,755	31,755	31,755	56,940	56,940	35,040	35,040	111,690	111,690	41,610	41,610	111,690	111,690	41,610
Aviation Support	263,710	260,610	128,845	20,805	549,504	547,136	167,536	20,805	695,777	714,305	209,590	20,805	695,777	714,305	209,590
Military	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060	1,476,060
Industrial	168,922	167,608	136,510	0	194,432	2,141,638	252,215	0	4,649,275	4,621,283	507,350	0	4,649,275	4,621,283	507,350
Commercial	0	0	235,972	0	0	0	380,294	0	0	0	918,523	0	0	0	918,523
Residential	547,500	0	118,625	0	547,500	0	355,876	0	0	0	474,500	0	0	0	474,500
Institutional	146,000	0	142,569	0	146,000	0	285,138	0	0	0	285,138	0	0	0	285,138
Public Recreation	401,500	0	834,463	0	401,500	0	1,063,957	0	0	0	1,063,957	0	0	0	1,063,957
Caretaker	0	0	0	21,900	0	0	0	7,300	0	0	0	7,300	0	0	7,300
Vacant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>3,035,447</b>	<b>1,936,033</b>	<b>3,104,799</b>	<b>1,550,520</b>	<b>3,371,936</b>	<b>4,221,773</b>	<b>4,016,114</b>	<b>1,539,205</b>	<b>6,932,802</b>	<b>6,923,338</b>	<b>4,124,500</b>	<b>1,545,775</b>	<b>6,932,802</b>	<b>6,923,338</b>	<b>4,124,500</b>

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-9. Electrical Consumption by Land Use Category, Rickenbacker AFB Reuse (kWH per day)

Land Use Category	1999				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	8	8	52	24	8	8	52	24	8	8	52	24
Aviation Support	4,376	4,317	1,943	699	9,524	9,478	2,647	699	12,534	12,492	3,399	699
Military	15,304	15,304	15,304	15,304	15,304	15,304	15,304	15,304	16,860	16,860	16,860	16,860
Industrial	2,536	2,516	1,288	0	2,823	34,848	2,899	0	54,883	54,558	6,442	0
Commercial	0	0	1,150	0	0	0	1,804	0	0	0	4,084	0
Residential	4,384	0	854	0	4,348	0	2,562	0	0	0	3,416	0
Institutional	1,651	0	1,102	0	1,651	0	2,205	0	0	0	2,205	0
Public Recreation	1,065	0	885	0	1,065	0	1,111	0	0	0	1,111	0
Caretaker	0	0	0	77	0	0	0	26	0	0	0	26
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	29,324	22,145	22,578	16,104	34,759	59,638	28,573	16,053	84,285	83,918	37,569	17,609

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-10. Natural Gas Consumption by Land Use Category, Rickenbacker AFB Reuse (therms per day)

Land Use Category	1999				2004				2014			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	0	0	0	0	0	0	0	0	0	0	0	0
Aviation Support	572	480	216	78	906	1,053	294	78	1,240	1,388	378	78
Military	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,721	1,896	1,896	1,896	1,896
Industrial	254	251	129	0	282	2,474	290	0	5,488	5,456	644	0
Commercial	0	0	170	0	0	0	257	0	0	0	527	0
Residential	493	0	142	0	493	0	426	0	0	0	568	0
Institutional	186	0	88	0	186	0	176	0	0	0	176	0
Public Recreation	150	0	115	0	150	0	148	0	0	0	147	0
Caretaker	0	0	0	9	0	0	0	3	0	0	0	3
Vacant	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,376	2,452	2,581	1,808	3,738	5,248	3,313	1,802	8,624	8,740	4,336	1,977

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

**Table K-11. Hazardous Materials Usage by Land Use Category, Rickenbacker AFB Reuse, 1999-2014**

Land Use Category	Aviation with Industrial Park Alternative			No-Action Alternative
	Proposed Action	Aviation with Mixed Use Alternative	Same as Proposed Action	
Airfield	Aviation fuels, propylene glycol, ethylene glycol, heating oils.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Aviation Support	Fuels; solvents; paints; petroleum, oil, and lubricants (POL); hydraulic fluids; degreasers; corrosives; heavy metals; reactives; thinners; paints; glycols; ignitables; heating oils; plating waste; cyanides.	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Military	Fuels, glycols, heating oils, solvents, paints, POL, corrosives, metals, pesticides	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Industrial	Solvent, heavy metals, POL, corrosives, catalysts, aerosols, fuels, heating oils, ignitables, pesticides	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Institutional (Medical)	Pharmaceuticals, medical/ biohazardous waste, chemotherapeutic drugs, radiological sources, heavy metals	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Commercial	N/A	N/A	Fuels, solvents, corrosives, POL, ignitables, heating oils, pesticides, dry cleaning wastes.	N/A
Residential	N/A	N/A	Pesticides, fertilizers, fuels, waste oils, chlorine, and household wastes.	N/A
Public/Facilities Recreation	N/A	N/A	Pesticides, fertilizers, chlorine, heating oils, paints, thinners, cleaners, solvents, aerosols, and POL.	N/A
Vacant	Pesticides, fertilizer, paints, heating oil	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

Note: Quantities of hazardous materials used will depend on the specific development and are not reported here.

N/A = Not applicable.

POL = Petroleum, oil, and lubricants.

Table K-12. Number of Installation Restoration Program Sites by Land Use Category, Rickenbacker AFB Reuse

Land Use Category	1994			
	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	2	2	2	0
Aviation Support	2	2	0	0
Industrial - General	4	4	4	0
Industrial - Warehousing	3	3	3	0
Military	3	3	3	4
Vacant	0	0	2	10*
Total #	14	14	14	14

Note: Summarized above are identified Installation Restoration Program sites as of 1994. The number of sites over the 1994-2014 period would change as remediation measures are implemented for individual sites.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park Alternative

Alt. 2 = Aviation with Mixed Use Alternative

N.A. = No-Action Alternative

\* = Includes facilities and grounds in caretaker status

# = Total does not include IRP Site 25 which includes all the open drainage ditches throughout the base and is not associated with any specific land use.

Table K-13. Soils and Geology Impacts by Land Use Category, Rickenbacker AFB Reuse, 1999-2014 (acres of soil disturbance)

Land Use Category	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	57	32	32	32
Aviation Support	75	65	5	1
Military	35	35	35	35
Industrial	168	161	12	0
Commercial	0	0	8	0
Residential	0	0	16	0
Institutional	0	0	2	0
Public Recreation	0	0	2	0
Caretaker	0	0	0	0
Vacant	2	2	2	3
Total	337	295	114	71

Note: Disturbance of soils would depend upon the construction schedules of various facilities on base. Therefore, no breakdown is provided for the benchmark years 1999, 2004, and 2014.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action



Table K-14. Air Quality VOC Impacts by Land Use Category, Rickenbacker AFB Reuse<sup>(a)</sup> (emissions in tons/day)

Land Use Category	1999*					2004		
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield <sup>(b)</sup>	2.353	2.353	2.136	2.141	2.572	2.582	2.124	2.129
Aviation Support	0.178	0.187	0.073	0.023	0.259	0.317	0.071	0.020
Military	0.190	0.202	0.158	0.311	0.133	0.163	0.118	0.273
Industrial	0.047	0.050	0.019	0.000	0.036	0.296	0.027	0.000
Commercial	0.001	0.000	0.025	0.000	0.000	0.000	0.037	0.000
Residential	0.002	0.000	0.078	0.000	0.001	0.000	0.108	0.000
Institutional	0.000	0.000	0.028	0.000	0.000	0.000	0.041	0.000
Public/Recreation	0.028	0.000	0.081	0.000	0.020	0.000	0.066	0.000
Caretaker	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.001
Vacant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Total</b>	<b>2.799</b>	<b>2.792</b>	<b>2.598</b>	<b>2.479</b>	<b>3.021</b>	<b>3.358</b>	<b>2.592</b>	<b>2.424</b>

<sup>(a)</sup> The air quality analysis considered only a ten-year period from realignment. Emission estimates are not available for 2014.

<sup>(b)</sup> For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-15. Air Quality NO<sub>x</sub> Impacts by Land Use Category, Rickenbacker AFB Reuse <sup>(a)</sup> (emissions in tons/day)

Land Use Category	1999*				2004			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield <sup>(b)</sup>	2.089	2.089	1.116	1.122	2.593	2.496	1.189	1.198
Aviation Support	0.240	0.252	0.098	0.031	0.401	0.491	0.109	0.031
Military	0.257	0.273	0.214	0.421	0.206	0.252	0.182	0.423
Industrial	0.064	0.068	0.026	0.000	0.055	0.459	0.042	0.000
Commercial	0.001	0.000	0.034	0.000	0.001	0.000	0.057	0.000
Residential	0.003	0.000	0.106	0.000	0.002	0.000	0.168	0.000
Institutional	0.000	0.000	0.037	0.000	0.000	0.000	0.064	0.000
Public/Recreation	0.038	0.000	0.110	0.000	0.030	0.000	0.103	0.000
Caretaker	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.002
Vacant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.691	2.682	1.741	1.580	3.289	3.798	1.914	1.654

<sup>(a)</sup> The air quality analysis considered only a ten-year period from realignment. Emission estimates are not available for 2014.

<sup>(b)</sup> For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-16. Air Quality CO Impacts by Land Use Category, Rickenbacker AFB Reuse <sup>(a)</sup> (total emissions in tons/day)

Land Use Category	1999*				2004			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield <sup>(b)</sup>	4.973	4.976	3.926	3.966	7.003	7.020	4.023	4.075
Aviation Support	1.463	1.536	0.598	0.189	2.443	2.987	0.665	0.190
Military	1.561	1.659	1.303	2.560	1.251	1.536	1.111	2.574
Industrial	0.387	0.411	0.159	0.000	0.335	2.792	0.255	0.000
Commercial	0.007	0.000	0.205	0.000	0.004	0.000	0.349	0.000
Residential	0.017	0.000	0.644	0.000	0.014	0.000	1.022	0.000
Institutional	0.000	0.000	0.227	0.000	0.000	0.000	0.388	0.000
Public/Recreation	0.231	0.000	0.670	0.000	0.185	0.000	0.624	0.000
Caretaker	0.000	0.000	0.000	0.037	0.000	0.000	0.000	0.013
Vacant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	8.640	8.582	7.731	6.752	11.235	14.335	8.437	6.852

<sup>(a)</sup>The air quality analysis considered only a ten-year period from realignment. Emission estimates are not available for 2014.

<sup>(b)</sup>For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-17. Air Quality SO<sub>2</sub> Impacts by Land Use Category, Rickenbacker AFB Reuse <sup>(a)</sup> (total emissions in tons/day)

Land Use Category	1999*				2004			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield <sup>(b)</sup>	0.138	0.138	0.082	0.082	0.171	0.172	0.085	0.086
Aviation Support	0.019	0.202	0.008	0.002	0.032	0.039	0.009	0.003
Military	0.021	0.022	0.017	0.034	0.107	0.020	0.015	0.034
Industrial	0.005	0.005	0.002	0.000	0.004	0.037	0.003	0.000
Commercial	0.000	0.000	0.003	0.000	0.000	0.000	0.005	0.000
Residential	0.000	0.000	0.008	0.000	0.000	0.000	0.013	0.000
Institutional	0.000	0.000	0.003	0.000	0.000	0.000	0.005	0.000
Public/Recreation	0.003	0.000	0.009	0.000	0.002	0.000	0.008	0.000
Caretaker	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Vacant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.187	0.186	0.132	0.119	0.227	0.268	0.144	0.123

<sup>(a)</sup>The air quality analysis considered only a ten-year period from realignment. Emission estimates are not available for 2014.

<sup>(b)</sup>For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-18. Air Quality PM<sub>10</sub> Impacts by Land Use Category, Rickenbacker AFB Reuse<sup>(a)</sup> (total emissions in tons/day)

Land Use Category	1999*				2004			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield <sup>(b)</sup>	0.068	0.068	0.048	0.052	0.087	0.088	0.048	0.052
Aviation Support	0.133	0.140	0.054	0.017	0.222	0.272	0.061	0.017
Military	0.142	0.151	0.119	0.233	0.114	0.140	0.101	0.234
Industrial	0.035	0.037	0.014	0.000	0.030	0.254	0.023	0.000
Commercial	0.001	0.000	0.019	0.000	0.000	0.000	0.032	0.000
Residential	0.002	0.000	0.059	0.000	0.001	0.000	0.093	0.000
Institutional	0.000	0.000	0.021	0.000	0.000	0.000	0.035	0.000
Public/Recreation	0.021	0.000	0.061	0.000	0.017	0.000	0.057	0.000
Caretaker	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.001
Vacant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.402	0.397	0.395	0.305	0.472	0.754	0.449	0.305

<sup>(a)</sup>The air quality analysis considered only a ten-year period from realignment. Emission estimates are not available for 2014.

<sup>(b)</sup>For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-19. Air Quality Impacts by Land Use Category<sup>(a)</sup>, Rickenbacker AFB Reuse<sup>(b)</sup> (total emissions in tons/day)

Land Use Category	1999*				2004			
	P.A.	Alt. 1	Alt. 2	N.A.	P.A.	Alt. 1	Alt. 2	N.A.
Airfield <sup>(b)</sup>	9.621	9.625	7.307	7.363	12.427	12.457	7.469	7.540
Aviation Support	2.034	2.134	0.831	0.263	3.358	4.106	0.914	0.261
Military	2.170	2.306	1.812	3.558	1.720	2.112	1.527	3.538
Industrial	0.538	0.571	0.220	0.000	0.461	3.838	0.351	0.000
Commercial	0.010	0.000	0.285	0.000	0.006	0.000	0.479	0.000
Residential	0.024	0.000	0.895	0.000	0.019	0.000	1.405	0.000
Institutional	0.000	0.000	0.316	0.000	0.000	0.000	0.533	0.000
Public/Recreation	0.321	0.000	0.931	0.000	0.254	0.000	0.858	0.000
Caretaker	0.000	0.000	0.000	0.051	0.000	0.000	0.000	0.018
Vacant	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	14.718	14.637	12.597	11.236	18.244	22.513	13.537	11.357

<sup>(a)</sup>Impacts include total emissions of VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub>.

<sup>(b)</sup>The air quality analysis considered only a ten-year period from realignment. Emission estimates are not available for 2014.

<sup>(c)</sup>For Airfield land use category, emissions are based on the aircraft flying operations; for all other categories, emissions are based on average daily traffic generated by each land use category.

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

Table K-20. Expected Noise Levels by Land Use Category, Rickenbacker AFB Reuse, 2014 (typical DNL in dB)

Land Use Category	P.A.	Alt. 1	Alt. 2	N.A.
Airfield	<65-85	<65-85	65-85	65-85
Aviation Support	<65-80	<65-80	<65-75	<65-75
Military	<65-67	<65-67	<65-67	<65-67
Industrial	<65	<65	<65	N/A
Commercial	N/A	N/A	<65	N/A
Residential	N/A	N/A	<65	N/A
Institutional	N/A	N/A	<65	N/A
Public Recreation	N/A	N/A	<65	N/A
Caretaker	N/A	N/A	N/A	<65-75
Vacant	65-78	65-78	65-75	N/A

P.A. = Proposed Action

Alt. 1 = Aviation with Industrial Park

Alt. 2 = Aviation with Mixed Use

N.A. = No-Action

dB = decibels

DNL = day-night average sound level

N/A = Not applicable

Table K-21. Reuse Acres by Land Use Category, RANGB, 1994-2014

Land Use Category	Proposed Action	Aviation with Industrial Park Alternative	Aviation with Mixed Use Alternative	No-Action Alternative
Airfield	1,112	1,148	1,156	1,165
Aviation Support	246	169	177	41
Industrial	307	348	120	0
Institutional (Medical)	0	0	18	0
Commercial	0	0	39	0
Residential	0	0	21	0
Public/Recreation	0	0	61	0
Caretaker	0	0	0	402
Vacant Land	43	43	116	100
Total	1,708	1,708	1,708	1,708

Note: Disturbance over the 1994-2014 period. Includes soil and wildlife habitat disturbance.



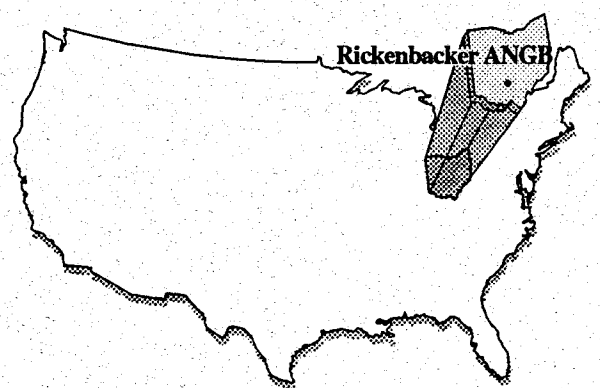
Table K-22. Cultural and Paleontological Resources Impacts by Land Use Category, Rickenbacker AFB Reuse, 1999-2014

Land Use Category	Proposed Action	Aviation with Industrial Park Alternative	Aviation with Mixed Use Alternative	No-Action Alternative
Airfield <sup>(a)</sup>	N.I.	N.I.	N.I.	N.I.
Aviation Support <sup>(a)</sup>	N.I.	N.I.	N.I.	N.I.
Military	N.I.	N.I.	N.I.	N.I.
Industrial <sup>(a)</sup>	N.I.	N.I.	N.I.	--
Commercial	--	--	N.I.	--
Residential	--	--	N.I.	--
Institutional	--	--	N.I.	--
Public Recreation	--	--	N.I.	--
Caretaker	--	--	--	N.I.
Vacant <sup>(a)</sup>	N.I.	N.I.	N.I.	--

N.I. = No impacts to NRHP-eligible sites.

NRHP = National Register of Historic Places.

<sup>(a)</sup>N.I. on Rickenbacker ANGB; potential for impacts of NRHP sites located on off-base areas to be developed by the RPA.



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## APPENDIX L

**APPENDIX L**

**SPECIES LIST FOR RICKENBACKER AIR NATIONAL GUARD BASE**

# APPENDIX L

## SPECIES LIST FOR RICKENBACKER ANGB

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>BIRDS</b>						
Cooper's hawk	<i>Accipiter cooperii</i>		P			
Red-winged blackbird	<i>Agelaius phoeniceus</i>				P	
Mallard	<i>Anas platyrhynchos</i>	P				
American black duck	<i>Anas rubripes</i>	P				
Great blue heron	<i>Ardea herodias</i>	P				
Upland sandpiper	<i>Bartramia longicauda</i>				P	
Cedar waxwing	<i>Bombycilla cedrorum</i>				P	
Great-horned owl	<i>Bubo virginianus</i>		P			
Bufflehead	<i>Bucephala albeola</i>	P				
Red-tailed hawk	<i>Buteo jamaicensis</i>		P		P	
Rough legged hawk	<i>Buteo lagopus</i>		P	P	P	
Red-shouldered hawk	<i>Buteo lineatus</i>		P			
Northern cardinal	<i>Cardinalis cardinalis</i>		P			P
American goldfinch	<i>Carduelis tristis</i>				P	O
Killdeer	<i>Charadrius vociferus</i>				P	O
Northern Flicker	<i>Colaptes auratus</i>		P			
Northern bobwhite	<i>Colinus virginianus</i>			P	P	
American crow	<i>Corvus brachyrhynchos</i>		P	P	P	
Blue jay	<i>Cyanocitta cristata</i>		P		O	
Pileated woodpecker	<i>Dryocopus pileatus</i>		P			
Horned lark	<i>Eremophila alpestris</i>				O	O
Peregrine falcon	<i>Falco peregrinus</i>				P	
American kestrel	<i>Falco sparverius</i>		P		O	
Barn swallow	<i>Hirundo rustica</i>			P	P	O
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
O - OBSERVED						
Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
BIRDS						
Belted kingfisher	<i>Ceryle alcyon</i>	P			P	
Red-bellied woodpecker	<i>Melanerpes carolinus</i>		P			
Red headed woodpecker	<i>Melanerpes erythrocephalus</i>		P			
Song sparrow	<i>Melospiza melodia</i>				P	
Northern mockingbird	<i>Mimus polyglottos</i>			P	P	P
Brown-headed cowbird	<i>Molothrus ater</i>				P	
Eastern screech owl	<i>Otus asio</i>		P			
Tufted titmouse	<i>Parus bicolor</i>		P			
Carolina chickadee	<i>Parus carolinensis</i>		P			
House sparrow	<i>Passer domesticus</i>		P			P
Ringneck pheasant	<i>Phasianus colchicus</i>			P	P	
Downy woodpecker	<i>Picoides pubescens</i>		P			
Hairy woodpecker	<i>Picoides villosus</i>		P			
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>		P		P	
Common grackle	<i>Quiscalus quiscula</i>			P	P	
Eastern bluebird	<i>Sialia sialis</i>				P	P
White-breasted nuthatch	<i>Sitta carolinensis</i>		P			
Field sparrow	<i>Spizella pusilla</i>				P	
Barred owl	<i>Strix varia</i>		P			
Eastern meadowlark	<i>Sturnella magna</i>				P	
European starling	<i>Sturnus vulgaris</i>				P	O
Carolina wren	<i>Thryothorus ludovicianus</i>					P
American robin	<i>Turdus migratorius</i>		P			P
Barn owl	<i>Tyto alba</i>		P			
Mourning dove	<i>Zenaidura macroura</i>				P	O
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
O - OBSERVED						
Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>MAMMALS</b>						
Shorttail shrew	<i>Blarina brevicauda</i>		P		P	
Beaver	<i>Castor canadensis</i>	P	P			
Least shrew	<i>Cryptotis parva</i>	P			P	
Opossum	<i>Didelphis marsupialis</i>		P	P		
Big brown bat	<i>Eptesicus fuscus</i>		P			P
Southern flying squirrel	<i>Glaucomys volans</i>		P			
Silver-haired bat	<i>Lasionycteris noctivagans</i>		P			P
Red bat	<i>Lasturus borealis</i>		P			
Hoary bat	<i>Lasiurus cinereus</i>		P			
Woodchuck	<i>Marmota monax</i>				O	
Striped skunk	<i>Mephitis mephitis</i>				P	
Meadow vole	<i>Microtus pennsylvanicus</i>				P	
Long-tailed weasel	<i>Mustela frenata</i>	P				
Least weasel	<i>Mustela rixosa</i>		P			P
Mink	<i>Mustela vison</i>	P				
Keen myotis	<i>Myotis keeni</i>		P			
Little brown myotis	<i>Myotis lucifugus</i>					P
Indiana bat	<i>Myotis sodalis</i>		P			
Small-footed myotis	<i>Myotis subulatus</i>		P			P
Whitetail deer	<i>Odocoileus virginianus</i>		P		P	
Muskrat	<i>Ondatra zibethica</i>	P			P	
White footed mouse	<i>Peromyscus leucopus</i>		P		P	
Deer mouse	<i>Peromyscus maniculatus</i>		P		P	
Eastern pipistrel	<i>Pipistrellus subflavus</i>		P			P
Prairie vole	<i>Pitymys pinetorum</i>				P	
Raccoon	<i>Procyon lotor</i>		P			
Eastern mole	<i>Scalopus aquaticus</i>				P	
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
O - OBSERVED						
Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>MAMMALS</b>						
Eastern gray squirrel	<i>Sciurus carolinensis</i>		P		O	
Eastern cottontail	<i>Sylvilagus floridanus</i>				P	
Eastern chipmunk	<i>Tamias striatus</i>		P			
Red fox	<i>Vulpes fulva</i>		P		P	
Meadow jumping mouse	<i>Zapus hudsonius</i>				P	
<b>REPTILES AND AMPHIBIANS</b>						
Northern cricket frog	<i>Acris crepitans crepitans</i>	P				
Spotted salamander	<i>Ambystoma maculatum</i>	P				
Marbled salamander	<i>Ambystoma opacum</i>	P				
Small mouthed salamander	<i>Ambystoma texanum</i>	P				
American toad	<i>Bufo americanus</i>	P	P			P
Fowler's toad	<i>Bufo woodhousei fowleri</i>	P				
Snapping turtle	<i>Chelydra serpentina</i>	P				
Midland painted turtle	<i>Chrysemys picta marginata</i>	P				
Blue racer	<i>Coluber constrictor foxi</i>	P	P		P	
Northern ringneck snake	<i>Diadophis punctatuedwardsi</i>		P			
Black rat snake	<i>Elaphe obsoleta obsoleta</i>		P	P		
Five-lined skink	<i>Eumeces fasciatus</i>	P			P	
Northern two-lined salamander	<i>Eurycea bislineata bislineata</i>	P	P			
Map turtle	<i>Graptemys geographica</i>	P				
Eastern hognose snake	<i>Heterodon platyrhinos</i>		P			
Spring peeper	<i>Hyla crucifer</i>	P				
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
O - OBSERVED						
Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>REPTILES AND AMPHIBIANS</b>						
Spring frog	<i>Hyla sp.</i>	O	O			
Gray treefrog	<i>Hyla versicolor</i> or <i>H. chrysocelis</i>	P	P			
Eastern milk snake	<i>Lampropeltis triangulatum triangulatum</i>		P		P	
Queen snake	<i>Natrix septemvittata</i>	P				
Northern water snake	<i>Natrix sipedon</i>	P				
Mudpuppy	<i>Necturus maculosus</i>	P				
Red spotted newt	<i>Notophthalmus viridescens viridescens</i>	P				
Red-backed salamander	<i>Plethodon cinereus cinereus</i>		P			
Western chorus frog	<i>Pseudacris triseriata triseriata</i>	P		P	P	P
Bullfrog	<i>Rana catesbeiana</i>	P				
Green frog	<i>Rana clamitans melanota</i>	P				
Pickerel frog	<i>Rana palustris</i>	P			P	
Northern leopard frog	<i>Rana pipiens</i>	P			P	
Wood frog	<i>Rana sylvatica</i>	P	P			
Stinkpot	<i>Sternotherus odoratus</i>	P				
Northern brown snake	<i>Storeia dekayi dekayi</i>	P	P			P
Midland brown snake	<i>Storeia dekayi wrightorum</i>	P	P			P
Eastern box turtle	<i>Terrapene carolina carolina</i>				P	
Eastern ribbon snake	<i>Thamnophis sauritus sauritus</i>	P				
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>	P	P		P	P
Eastern spiny softshell	<i>Trionyx spiniferus</i>	P				
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
O - OBSERVED						
Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						



Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>INSECTS</b>						
Crayfish	<i>Procambarus sp.</i>	O				
Water boatman	<i>Corixidae</i>	O				
Water strider	<i>Gerridae</i>	O				
<b>FISH</b>						
Lake sturgeon	<i>Acipenser fulvescens</i>	P				
Skipjack herring	<i>Alosa chrysochloris</i>	P				
Rock bass	<i>Ambloplites rupestris</i>	P				
Black bullhead	<i>Ameiurus melas</i>	P				
Yellow bullhead	<i>Ameiurus natalis</i>	P				
Brown bullhead	<i>Ameiurus nebulosus</i>	P				
American eel	<i>Anguilla rostrata</i>	P				
Freshwater drum	<i>Aplodinotus grunniens</i>	P				
Central stoneroller	<i>Campostoma anotalus</i>	P				
Goldfish	<i>Carassius auratus</i>	P				
River carpsucker	<i>Carpodes carpio</i>	P				
Quillback carpsucker	<i>Carpodes cyprinus</i>	P				
White sucker	<i>Catostomus commersoni</i>	P				
Redside dace	<i>Clinostomus elongatus</i>	P				
Mottled sculpin	<i>Cottus bairdi</i>	P				
Spotfin shiner	<i>Cyprinella spiloptera</i>	P				
Steelcolor shiner	<i>Cyprinella whipplei</i>	P				
Common carp	<i>Cyprinus carpio</i>	P				
Gizzard shad	<i>Dorosoma cepedianum</i>	P				
Northern riffleshell	<i>Eptoblasma torulosa rangiana</i>	P				
Silverjaw minnow	<i>Ericymba buccata</i>	P				
Streamline chub	<i>Erimystax dissimilis</i>	P				
Gravel chub	<i>Erimystax x-punctatus</i>	P				
Grass pickerel	<i>Esox americanus</i>	P				
Redfin pickerel	<i>Esox americanus</i>	P				
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
O - OBSERVED						
Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>FISH</b>						
Northern pike	<i>Esox lucius</i>	P				
Muskellunge	<i>Esox masquinongy</i>	P				
Greenside darter	<i>Etheostoma blennioides</i>	P				
Rainbow darter	<i>Etheostoma caeruleum</i>	P				
Fantail darter	<i>Etheostoma flabellare</i>	P				
Brighteye darter	<i>Etheostoma lynceum</i>	P				
Least darter	<i>Etheostoma micropera</i>	P				
Johany darter	<i>Etheostoma nigrum</i>	P				
Orangethroat darter	<i>Etheostoma spectabile</i>	P				
Eastern sand darter	<i>Etheostoma vivax</i>	P				
Banded darter	<i>Etheostoma zonale</i>	P				
Blackstripe topminnow	<i>Fundulus notatus</i>	P				
Northern hog sucker	<i>Hypentelium nigricans</i>	P				
Channel catfish	<i>Ictalurus punctatus</i>	P				
Smallmouth buffalo	<i>Ictiobus bubalus</i>	P				
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>	P				
Brook silverside	<i>Labidesthes sicculus</i>	P				
Least brook lamprey	<i>Lampetra aepyptera</i>	P				
Longnose gar	<i>Lepisosteus osseus</i>	P				
Green sunfish	<i>Lepomis cyanellus</i>	P				
Pumpkinseed	<i>Lepomis gibbosus</i>	P				
Orangespotted sunfish	<i>Lepomis humilis</i>	P				
Bluegill	<i>Lepomis macrochirus</i>	P				
Longear sunfish	<i>Lepomis megalotis</i>	P				
Green sunfish X Longear	<i>Lepomis sp.</i>	P				
Green sunfish X Os. sunfish	<i>Lepomis sp.</i>	P				
Longearsunfish X Bluegill	<i>Lepomis sp.</i>	P				
Striped shiner	<i>Luxilus chrysocephalus</i>	P				
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Data from unpublished RI FS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>FISH</b>						
Redfin shiner	<i>Lythrurus umbratilis</i>	P				
Silver chub	<i>Macrhybopsis storeiana</i>	P				
Smallmouth bass	<i>Micropterus dolomieu</i>	P				
Spotted bass	<i>Micropterus punctulatus</i>	P				
Largemouth bass	<i>Micropterus salmoides</i>	P				
Spotted sucker	<i>Minytrema melanops</i>	P				
White bass	<i>Morone chrysops</i>	P				
Silver redhorse	<i>Moxostoma anisurum</i>	P				
River redhorse	<i>Moxostoma carinatum</i>	P				
Black redhorse	<i>Moxostoma duquesnei</i>	P				
Golden redhorse	<i>Moxostoma erythrum</i>	P				
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	P				
Hornyhead chub	<i>Nocomis biguttatus</i>	P				
River chub	<i>Nocomis micropogon</i>	P				
Golden shiner	<i>Notemigonus crysoleucas</i>	P				
Emerald shiner	<i>Notropis atherinoides</i>	P				
Sand shiner	<i>Notropis ludibundus</i>	P				
Silver shiner	<i>Notropis photogenis</i>	P				
Rosyface shiner	<i>Notropis rubellus</i>	P				
Mimic shiner	<i>Notropis volucellus</i>	P				
Stonecat madtom	<i>Noturus flavus</i>	P				
Tadpole madtom	<i>Noturus gyrinus</i>	P				
Scioto madtom	<i>Noturus travemani</i>	P				
Yellow perch	<i>Perca flavescens</i>	P				
Logperch	<i>Percina caprodes</i>	P				
Slenderhead darter	<i>Percina phoxocephala</i>	P				
Trout-perch	<i>Percopsis omiscomaycus</i>	P				
Suckermouth minnow	<i>Phenacobius mirabilis</i>	P				
P - POTENTIALLY PRESENT, BUT NOT OBSERVED						
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Data from unpublished RIFS report, surveys done in Sept. 1993 at Rickenbacker AFB.						
Fish and Macroinvertebrate occurrence data was obtained from the Ohio EPA. This listing represents the results of a 1991 Survey of Big Walnut Creek and 1982 Walnut Creek Survey. All sampling sites are in or near the drainage area of Rickenbacker ANGB.						

Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>FISH</b>						
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	P				
Bluntnose minnow	<i>Pimephales notatus</i>	P				
Fathead minnow	<i>Pimephales promelas</i>	P				
Bullhead minnow	<i>Pimephales vigilax</i>	P				
Clubshell mussel	<i>Pleurobema clava</i>	P				
Paddle fish	<i>Polyodon spathula</i>	P				
White crappie	<i>Pomoxis annularis</i>	P				
Black crappie	<i>Pomoxis nigromaculatus</i>	P				
Flathead catfish	<i>Pylodictis olivaris</i>	P				
Blacknose dace	<i>Rhinichthys atratulus</i>	P				
Creek chub	<i>Semotilus atromaculatus</i>	P				
Sauger	<i>Stizostedion canadense</i>	P				
Sauger X Walleye	<i>Stizostedion sp.</i>	P				
<b>MACROINVERTEBRATES</b>						
	<i>Ancyronyx variegato</i>	P				
	<i>Anthopotamus sp.</i>	P				
	<i>Argia sp.</i>	P				
	<i>Baetis intercalaris</i>	P				
	<i>Baetis sp.</i>	P				
	<i>Berosus sp.</i>	P				
	<i>Caenis sp.</i>	P				
	<i>Cambaridae</i>	P				
	<i>Cheumatopsyche sp.</i>	P				
	<i>Coenagrionidae</i>	P				
	<i>Corbicula fluminea</i>	P				
	<i>Cordylophora lacustris</i>	P				
	<i>Corydalus cornutus</i>	P				
	<i>Cricotopus (C.) sp.</i>	P				
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Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
MACROINVERTEBRATES						
	<i>Dicrotendipes neomodestus</i>	P				
	<i>Dubiraphia vittata</i> group	P				
	<i>Elimia</i> sp.	P				
	<i>Empididae</i>	P				
	<i>Ferrissia</i> sp.	P				
	<i>Glyptotendipes (Phytotendipes)</i> sp.	P				
	<i>Hayesomyia senata</i>	P				
	<i>Hetaerina</i> sp.	P				
	<i>Hydra</i> sp.	P				
	<i>Hydracarina</i>	P				
	<i>Hydropsyche (Ceratopsyche)</i> morosa group	P				
	<i>Hydropsyche (H.) dicartha</i>	P				
	<i>Hydropsyche (H.) orris</i>	P				
	<i>Hydropsyche (H.) valanis</i>	P				
	<i>Hydroptila</i> sp.	P				
	<i>Isonychia</i> sp.	P				
	<i>Labrundinia pilosella</i>	P				
	<i>Larsia</i> sp.	P				
	<i>Leucrocuta</i> sp.	P				
	<i>Macronychus glabratus</i>	P				
	<i>Macrostemum zebratum</i>	P				
	<i>Nanocladius (N.) crassicornus</i> (old)	P				
	<i>Nilotamypus fimbriatus</i>	P				
	<i>Oligochaeta</i>	P				
	<i>Orconectes</i>	P				
	<i>Paludicella articulata</i>	P				
	<i>Petrophia</i> sp.	P				
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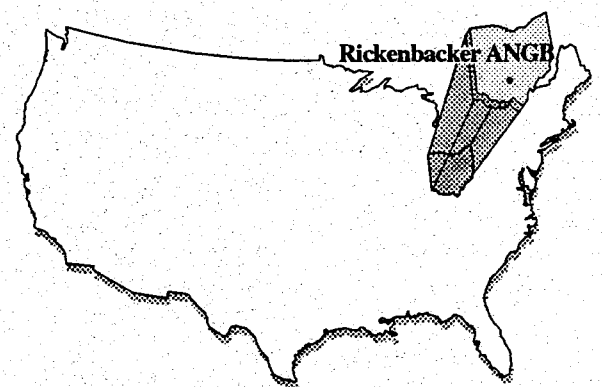
Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>MACROINVERTEBRATES</b>						
	<i>Plumatello sp.</i>	P				
	<i>Polypedilum (P.) convictum</i>	P				
	<i>Polypedilum (P.) fallax group</i>	P				
	<i>Polypedilum (P.) illinoense</i>	P				
	<i>Polypedilum (Tripodura) scalaenum group</i>	P				
	<i>Potamyia flava</i>	P				
	<i>Rheotanytarsus exigurus group</i>	P				
	<i>Stenacron sp.</i>	P				
	<i>Stenelmis sp.</i>	P				
	<i>Stenonema exigum</i>	P				
	<i>Stenonema mexicanus integrum</i>	P				
	<i>Stenonema pulchellum</i>	P				
	<i>Stenonema terminatum</i>	P				
	<i>Tanytarsus glabrescens group</i>	P				
	<i>Tanytarsus guerlus group</i>	P				
	<i>Thienemanninia group</i>	P				
	<i>Tricorythodes sp.</i>	P				
	<i>Turbellaria</i>	P				
<b>VEGETATION</b>						
<b>HERBACEOUS SPECIES</b>						
Garlic mustard	<i>Alliaria officinalis</i>					O
Ragweed	<i>Ambrosia artemisiifolia</i>					O
Bluestem	<i>Andropogon scoparius</i>				O	
Bacopa	<i>Bacopa monniera</i>					O
Bushy pondweed	<i>Carex sp.</i>	O				
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Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
HERBACEOUS SPECIES						
Milk purshane	<i>Chamaesyce maculata</i>					O
Chicory	<i>Cichorium intybus</i>					O
Sedge	<i>Cyperus strigosus</i>				O	
Queen Anne's lace	<i>Daucus carota</i>				O	
Scouringrush	<i>Equisetum hyemale</i>		O			
Soybeans	<i>Glycine max</i>			O		
Jewelweed	<i>Impatiens capensis</i>					O
Morning glory	<i>Ipomoea purpurea</i>					O
Rush	<i>Juncus effusus</i>					O
Evening primrose	<i>Lysimachia sp.</i>				O	
Parrots feather	<i>Myriophyllum brasiliense</i>					O
Leosestrife	<i>Najas flexilis</i>	O				
English plantain	<i>Plantago lanceolata</i>				O	O
Kentucky bluegrass	<i>Poa. sp.</i>			O		
Kentucky fescue	<i>Festuca sp.</i>					O
Smartweed	<i>Polygonum sp.</i>					O
Pondweed	<i>Potamogeton pulcher</i>	O				O
Yellowcress	<i>Rorippa islandica</i>				O	
Swamp rose	<i>Rosa palustris</i>					O
Black-eyed susan	<i>Rudbeckia hirta</i>					O
Green foxtail	<i>Setaria viridis</i>					O
Common dandelion	<i>Taraxacum officinale</i>					O
Red clover	<i>Trifolium pratense</i>					O
White clover	<i>Trifolium repens</i>					O
Wild grape	<i>Vitis rotundifolia</i>				O	
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Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
<b>SHRUBS</b>						
Willow aster	<i>Aster praealtus</i>				O	
Teasel	<i>Dipsacus sylvestis</i>		O			
Ice-pye weed	<i>Eupatorium fistulosum</i>		O			
Honey locust	<i>Gledisia triacanthos</i>		O		O	
Red cedar	<i>Juniperus virginiana</i>		O			O
Fly honey suckle	<i>Lonicera canadensis</i>				O	
Reed	<i>Phragmites communis</i>				O	O
Eastern cottonwood	<i>Populus deltoides</i>				O	O
Smooth sumac	<i>Rhus glabra</i>				O	
Poison ivy	<i>Rhus radicans</i>				O	O
Coastal plain willow	<i>Salix caroliniana</i>		O			O
Black willow	<i>Salix nigra</i>		O			O
Tall golden rod	<i>Solidago altissima</i>		O			O
Cat-tail	<i>Typha latifolia</i>	O			O	
Wing-stem	<i>Verbesina alternifolia</i>					O
Corn	<i>Zea mays</i>			O		
<b>TREES</b>						
Box elder	<i>Acer negundo</i>		O			O
Silver maple	<i>Acer saccharimon</i>		O			O
Sugar maple	<i>Acer saccharum</i>		O			O
Pignut hickory	<i>Carya glabra</i>		O			O
Hackberry	<i>Celtis occidentalis</i>		O			O
Black cherry	<i>Crateagus disperma</i>		O			O
White ash	<i>Fraxinus americanus</i>		O		O	O
Green ash	<i>Fraxinus pennsylvanica</i>		O			O
Pumpkin ash	<i>Fraxinus profunda</i>		O			O
Red mulberry	<i>Morus rubra</i>		O			O
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Common Name	Scientific Name	Aquatic	Forest	Agriculture	Open Field	Urban Land
TREES						
Red bay	<i>Persea barbonia</i>		O			O
Sweetbay magnolia	<i>Platanus occidentalis</i>		O			O
Sycamore	<i>Patanus racemosa</i>		O			O
Apple	<i>Pyrus sp.</i>				O	O
Whiteoak	<i>Quercus alba</i>		O			O
Chesnut oak	<i>Quercus prinus</i>		O			O
Red oak	<i>Quercus rubra</i>		O			O
Black locust	<i>Robinia pseudoacacia</i>		O		O	
American elm	<i>Ulnus americana</i>		O			O
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## APPENDIX M

**APPENDIX M**

**CORRESPONDENCE REGARDING THE OCCURRENCE OF PRIME  
FARMLAND ON RICKENBACKER ANGB**



United States  
Department of  
Agriculture

APPENDIX M

Soil  
Conservation  
Service

200 North High Street  
Room 522  
Columbus, Ohio 43215

25 MAR 1994  
REC-123

March 23, 1994

Lt. Col. Gary P. Baumgartel, Director  
Environmental Conservation and Planning  
Directorate  
AFCEE/EC  
8106 Chennault Road  
Brooks Air Force Base, Texas

Dear Colonel Baumgartel:

In response to your letter of inquiry regarding the occurrence of prime farmland on Rickenbacker Air Force Base, the vast majority of the base is within Franklin County, Ohio. The soils mapped on the base are:

<u>Symbol</u>	<u>Map Unit Name</u>
CfB	Celina - Urban land complex, 2 to 6 percent slopes.
CsA	Crosby - Urban land complex, 0 to 2 percent slopes.
Ku	Kokomo - Urban land complex.

Because of the extensive amount of surface that is covered by nonsoil material (roads, buildings, etc.) and disturbance of natural soils that occurs during construction operations in these areas, these mapping units are not considered prime farmland.

A small part of the base is within Pickaway County, Ohio. Because of the relatively minor extent of disturbed soil areas when compared with undisturbed areas of Celina, Crosby, and Kokomo soils in this part of Pickaway County, the areas that include disturbed soils were not separated from areas of undisturbed soils during the Pickaway County mapping project.

I have enclosed copies of the soil surveys of Franklin County and Pickaway County, Ohio, for your future reference. If you have further questions, please contact Jonathan Gerken, acting state soil scientist at (614)469-6914.

ROGER A. HANSEN  
Acting State Conservationist

Enclosures

cc:  
J. C. Gerken, Acting SSS, SCS, Columbus, Ohio  
D. A. Coulter, AC, SCS, Chillicothe, Ohio  
M. L. Westbrook, DC, SCS, Columbus, Ohio

# FARMLAND CONVERSION IMPACT RATING

<b>PART I (To be completed by Federal Agency)</b>		Date Of Land Evaluation Request 05/16/1994	
Name Of Project Disposal and Reuse of Rickenbacker ANGB		Federal Agency Involved Air Force Center for Environmental Excellence	
Proposed Land Use Airport with aviation support, industrial warehousing and military use		County And State Franklin County, Ohio	
<b>PART II (To be completed by SCS)</b>		Date Request Received By SCS	

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply — do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %			Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System			Date Land Evaluation Returned By SCS	

<b>PART III (To be completed by Federal Agency)</b>	Alternative Site Rating			
	Site A <sup>1</sup>	Site B <sup>5</sup>	Site C	Site D
A. Total Acres To Be Converted Directly	0 <sup>2</sup>	0 <sup>2</sup>		
B. Total Acres To Be Converted Indirectly	758 <sup>3</sup>	316 <sup>6</sup>		
C. Total Acres In Site	4,437 <sup>4</sup>	3,791 <sup>7</sup>		

<b>PART IV (To be completed by SCS) Land Evaluation Information</b>				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				

<b>PART V (To be completed by SCS) Land Evaluation Criterion</b>				
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)				

<b>PART VI (To be completed by Federal Agency)</b>		Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))					
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS		160			

<b>PART VII (To be completed by Federal Agency)</b>				
Relative Value Of Farmland (From Part V)	100			
Total Site Assessment (From Part VI above or a local site assessment)	160			
TOTAL POINTS (Total of above 2 lines)	260			

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Reason For Selection:

# FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request 05/16/1994	
Name Of Project Disposal and Reuse of Rickenbacker ANG		Federal Agency Involved Air Force Center for Environmental Excellence	
Proposed Land Use Airport with aviation support, industrial, warehousing and military use		County And State Pickaway County, Ohio	
PART II (To be completed by SCS)		Date Request Received By SCS	
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply — do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Major Crop(s)		Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %
Name Of Land Evaluation System Used		Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS
PART III (To be completed by Federal Agency)		Alternative Site Rating	
		Site A	Site B
A. Total Acres To Be Converted Directly		02	02
B. Total Acres To Be Converted Indirectly		1,501 <sup>3</sup>	588 <sup>6</sup>
C. Total Acres In Site		2,114 <sup>4</sup>	1,017 <sup>7</sup>
PART IV (To be completed by SCS) Land Evaluation Information			
A. Total Acres Prime And Unique Farmland			
B. Total Acres Statewide And Local Important Farmland			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value			
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)			
PART VI (To be completed by Federal Agency)			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))	Maximum Points		
1. Area In Nonurban Use			
2. Perimeter In Nonurban Use			
3. Percent Of Site Being Farmed			
4. Protection Provided By State And Local Government			
5. Distance From Urban Builtup Area			
6. Distance To Urban Support Services			
7. Size Of Present Farm Unit Compared To Average			
8. Creation Of Nonfarmable Farmland			
9. Availability Of Farm Support Services			
10. On-Farm Investments			
11. Effects Of Conversion On Farm Support Services			
12. Compatibility With Existing Agricultural Use			
TOTAL SITE ASSESSMENT POINTS	160		
PART VII (To be completed by Federal Agency)			
Relative Value Of Farmland (From Part V)	100		
Total Site Assessment (From Part VI above or a local site assessment)	160		
TOTAL POINTS (Total of above 2 lines)	260		
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Reason For Selection:			

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